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Final Report On The
Emission Inventory
For The
City of [illegible]

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16. Abstracts - A summary is presented of the Emissions Inventory for the State of South Carolina. Point source data required for the preparation of the inventory were obtained from questionnaires and follow-up contacts with individual sources. Area source data and assumptions are described. These data have been obtained from various governmental agencies and by personal contact with knowledgeable individuals. All emissions are summarized in tabular form for each region and gridded area. Summary charts have also been prepared to illustrate the major sources of each pollutant. One chart is given for each pollutant for each air quality control region, each gridded area, and other selected metropolitan areas of particular interest.

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FINAL REPORT ON THE
EMISSIONS INVENTORY
FOR THE
STATE OF SOUTH CAROLINA

August 1971

Prepared For
Environmental Protection Agency
Office of Air Programs

TRW
SYSTEMS GROUP
WASHINGTON OPERATIONS
7600 COLSHIRE DRIVE • McLEAN, VIRGINIA 22101

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1. INTRODUCTION

Pursuant to the Clean Air Act of 1970, as amended, the Administrator of the Environmental Protection Agency (EPA) promulgated national ambient air quality standards for sulfur oxides, particulate matter, carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen dioxide on April 30, 1971. Within nine months of this pronouncement, each state is required to submit a plan for the implementation and enforcement of these standards for each air quality control region in the state. An initial requirement for each of these plans is an emissions inventory for each designated region, the purpose of which is to provide a basis for developing an applicable control strategy for each region.

The following report is submitted as a summary of the Emissions Inventory for the State of South Carolina. The Inventory has been prepared by TRW for EPA, with the cooperation of the State of South Carolina.

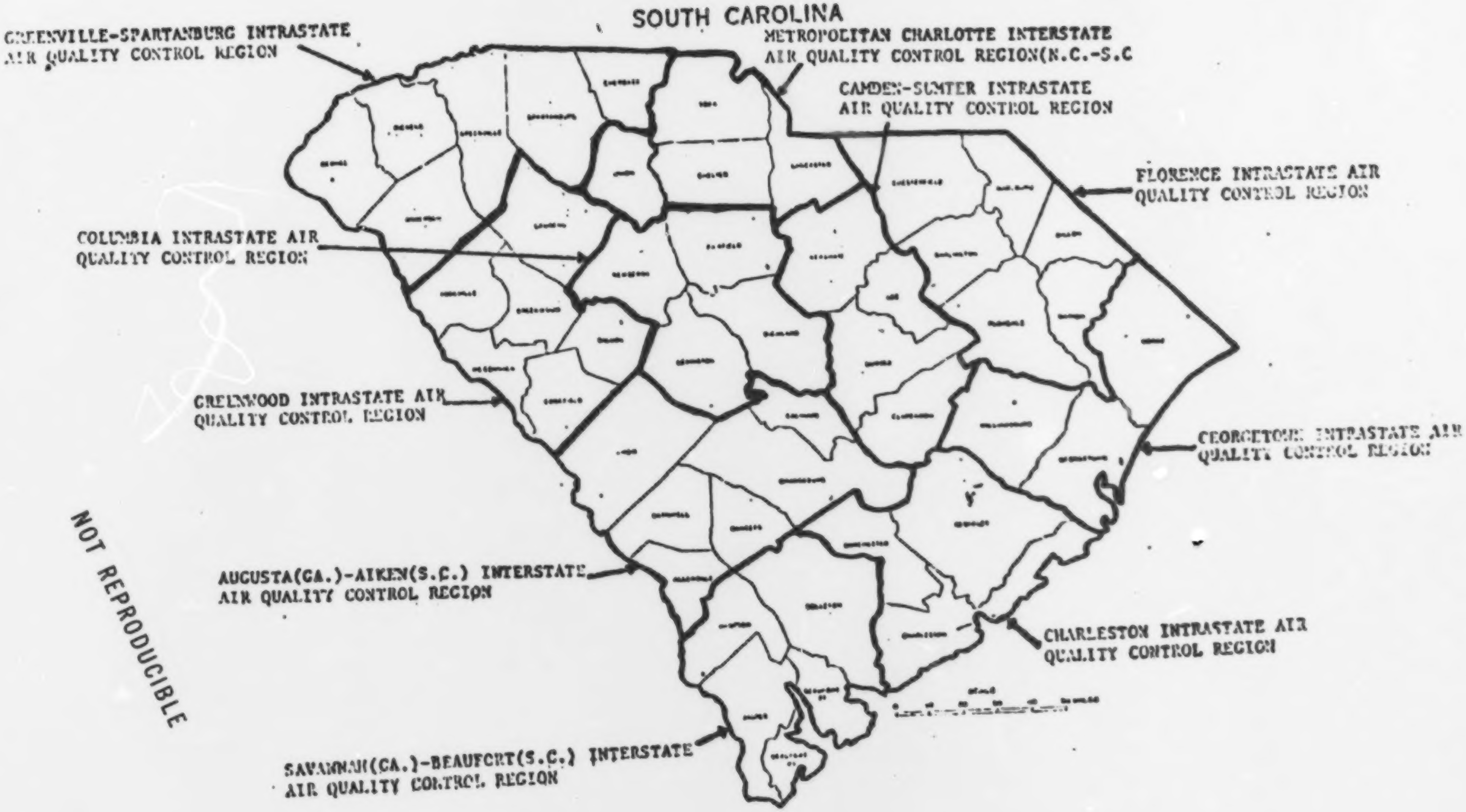
Point source data required for the preparation of the inventory have been obtained from questionnaires distributed by the State Agency and follow-up contacts with individual sources. The data have been transferred to prepared computer load sheets and processed by the EPA inventory computer program.

Area source data and assumptions are described in the following report. These data have been obtained from various governmental agencies and by personal contact with knowledgeable individuals. The area source data have been prepared in a similar format and computer processed.

The Metropolitan Charleston and Greenville-Spartanburg areas were divided into grid networks for the purposes of apportioning the emissions in these areas. All other emission totals are reported by political jurisdiction and region. Grid maps are illustrated in Appendix B of this report.

All emissions are summarized in tabular form for each region and gridded area. Summary charts have also been prepared to illustrate the major sources of each pollutant. One chart is given for each pollutant for each air quality control region, each gridded area, and other selected metropolitan areas of particular interest. These summary tables and charts serve as a guide to control strategy development and selection.

2. STATE OF SOUTH CAROLINA AIR QUALITY CONTROL REGIONS


SOUTH CAROLINA
GREENVILLE-SPARTANBURG INTRASTATE AIR QUALITY CONTROL REGION
METROPOLITAN CHARLOTTE INTERSTATE AIR QUALITY CONTROL REGION(N.C.-S.C
CAMDEN-SUMTER INTRASTATE AIR QUALITY CONTROL REGION
FLORENCE INTRASTATE AIR QUALITY CONTROL REGION
COLUMBIA INTRASTATE AIR QUALITY CONTROL REGION
GREENWOOD INTRASTATE AIR QUALITY CONTROL REGION
GEORGETOWN INTRASTATE AIR QUALITY CONTROL REGION
AUGUSTA(GA.)-AIKEN(S.C.) INTERSTATE AIR QUALITY CONTROL REGION
CHARLESTON INTRASTATE AIR QUALITY CONTROL REGION
SAVANNAH(GA.)-BEAUFORT(S.C.) INTERSTATE AIR QUALITY CONTROL REGION

NOT REPRODUCIBLE

JURISDICTIONS INCLUDED WITHIN AIR QUALITY CONTROL REGIONS IN SOUTH CAROLINA

Augusta-Aiken Interstate Air Quality Control Region (053)

In the State of Georgia:

1. Burke County
2. Columbia County
3. Emanuel County
4. Glascock County
5. Jefferson County
6. Jenkins County
7. Lincoln County
8. McDuffie County
9. Richmond County
10. Screven County
11. Taliaferro County
12. Warren County
13. Wilkes County

In the State of South Carolina:

14. Aiken County
15. Allendale County
16. Bamberg County
17. Barnwell County
18. Calhoun County
19. Orangeburg County

Camden-Sumter Intrastate Air Quality Control Region (198)

In the State of South Carolina:

1. Clarendon County
2. Kershaw County
3. Lee County
4. Sumter County

Charleston Intrastate Air Quality Control Region (199)

In the State of South Carolina:

1. Berkeley County
2. Charleston County
3. Dorchester County

Columbia Intrastate Air Quality Control Region (200)

In the State of South Carolina:

1. Fairfield County
2. Lexington County
3. Newberry County
4. Richland County

Florence Intrastate Air Quality Control Region (201)

In the State of South Carolina:

1. Chesterfield County
2. Darlington County
3. Dillon County
4. Florence County
5. Marion County
6. Marlboro County

Greenville Spartanburg Intrastate Air Quality Control Region (202)

In the State of South Carolina:

1. Anderson County
2. Cherokee County
3. Greenville County
4. Oconee County
5. Pickens County
6. Spartanburg County

Greenwood Intrastate Air Quality Control Region (203)

In the State of South Carolina:

1. Abbeville County
2. Edgefield County
3. Greenwood County
4. Laurens County
5. McCormick County
6. Saluda County

Georgetown Intrastate Air Quality Control Region (204)

In the State of South Carolina:

1. Georgetown County
2. Horry County
3. Williamsburg County

Metropolitan Charlotte Interstate Air Quality Control Region (167)

In the State of North Carolina:

1. Cabarrus County
2. Gaston County
3. Iredell County
4. Lincoln County
5. Mecklenburg County
6. Rowan County
7. Stanly County
8. Union County

In the State of South Carolina:

9. Chester County
10. Lancaster County
11. Union County
12. York County

Savannah-Beaufort Interstate Air Quality Control Region (058)

In the State of South Carolina:

9. Beaufort County
10. Colleton County
11. Hampton County
12. Jasper County

In the State of Georgia:

1. Bryan County
2. Bulloch County
3. Chandler County
4. Chathan County
5. Effingham County
6. Evans County
7. Liberty County
8. Tattnall County

3. METHODOLOGY

3.1 POINT SOURCES

3.1.1 Emission Factors

All point source emissions were determined using EPA Emission Factors and those EPA emission factors built in to the computer program. Table 3-1 describes the built-in factors.

3.1.2 Data and Procedures

Data on individual sources were obtained from the point source questionnaires distributed to each source (Appendix A) and subsequent conversations with individual sources where additional information was required. These data were transferred to the point source data form (Appendix A) and keypunched for computer processing. Assumptions applied to individual sources are noted as comments on the load sheets and the printout. The secondary fuel amounts are also given as comments.

Coordinates for point sources are given in minutes and seconds where UTM coordinates could not be obtained to the required degree of accuracy. Some coordinates are still missing. UTM coordinates are required for diffusion modeling.

Stack parameters for many of the sources could not be obtained even by recontacting the source. Although these data are not required for submission with the Implementation Plan, they are required for diffusion modeling and should be obtained subsequently, if possible.

Municipal airports and Air Force bases were considered point sources and emissions from LTO cycles were considered as originating at the location of the airport. Hydrocarbon losses from petroleum

Table 3-1. EMISSION FACTOR SET NUMBERS

Number	Source Type	
	BITMINOUS COAL BOILERS	
01	General Pulverized	100 x 10^6 BTU/hr.
02	Wet Bottom Pulverized	100 x 10^6 BTU/hr.
03	Dry Bottom Pulverized	100 x 10^6 BTU/hr.
04	Cyclone	100 x 10^6 BTU/hr
05	Stoker (large commercial and general industrial)	10-100 x 10^6 BTU/hr.
06	All other stokers	10-100 x 10^6 BTU/hr.
07	Stoker (domestic and commercial)	10 x 10^6 BTU/hr.
08	Handfired	10 x 10^6 BTU/hr.
	ANTHRACITE COAL BOILERS	
09	Puliverzed Dry Bottom	
10	Overfeed Stokers	
11	Handfired	
	FUEL OIL BOILERS	
12	Power Plant - Residual	
13	Industrial and Commercial - Residual	
14	Industrial and Commercial - Distillate	
15	Domestic - Distillate	
	NATURAL GAS BOILERS	
16	Power Plant	
17	Industrial	
18	Domestic Commercial	
19	Gas Turbines	
20	Gas Engines	

product storage were considered as area sources because of the amount of data required. Some data on individual terminals were received, especially from the Spartanburg and Charleston areas. Where terminal information is sufficient, they have been treated as point sources and are included in the final computer program output and in the summary data.

3.2 AREA SOURCES

3.2.1 Emission Factors and Fuel Parameters

All hand calculated and computer calculated emissions utilize emission factors published in EPA Emission Factors. Fuel parameters were obtained from The Fuel of Fifty Cities and Atmospheric Emissions from Coal Combustion. Table 3-2 includes the emission factors and fuel parameters for each source category.

3.2.2 Area Source Data and Methodology by Source Category

Source Category: F1 - Residential Coal

Data: (1) 1970 distribution of bituminous coal - Bureau of Mines - Mr. Westerstraum (557 - 1350)
1970 Retail tons to South Carolina - 290,000 tons

Procedure:

(1) Bierbaum and Gedgaudas suggest the Residential fuel consumption can be assumed to be equal to one-third of the total retail consumption in the state.

(2) The 1970 Census of Housing - fuel use data are not as yet available; therefore, the 1960 Census of Housing data were used to obtain the ratio of number of housing units using coal in each county to the number of housing units using coal in the state. This apportioning factor was adjusted in counties which showed a decrease in population in the 1970 Census of Population to reflect decreases in coal use in these counties.

$$\text{*County Residential Coal} = 1/2\ (\text{state coal}) \times \frac{\text{NBR housing units in county-1960 coal}}{\text{NBR housing units in state -1960 coal}}$$

*adjusted as described above and where local data were available.

Table 3-2. EMISSION FACTORS AND FUEL PARAMETERS

SOURCE CATEGORY (Units)	EMISSION FACTORS (lbs/fuel unit)					FUEL CONTENT	
	P	SO_2	CO	HC	NO_x	Sulfur	Ash
Residential Coal (tons)	10.00	38.00	50.00	12.00	5.00	1.00	5.00
Residential Fuel Oil (10^3gal)	10.00	5.76	5.00	3.00	12.00	.04	
Residential Natural Gas (10^6ft^3)	19.00	.60	20.00	8.00	75.00		
Commercial Coal (tons)	30.00	38.00	50.00	12.00	5.00	1.00	6.00
Commercial Residual Oil (10^3gal)	23.00	318.00	.20	3.00	60.00	2.00	
Commercial Distillate Oil (10^3gal)	15.00	120.96	.20	3.00	60.00	.84	
Commercial Natural Gas (10^6ft^3)	19.00	.60	20.00	8.00	75.00		
Industrial Coal (tons)	91.00	38.00	2.00	1.00	15.00	1.00	7.00
Industrial Residual Oil (10^3gal)	23.00	292.56	.20	3.00	60.00	1.84	
Industrial Distillate Oil (10^3gal)	15.00	144.00	.20	3.00	60.00	1.00	
Industrial Natural Gas (10^6ft^3)	18.00	.60	.40	40.00	175.00		
LP Gas (10^3gal)	6.10	.03	6.40	2.50	20.00		
Open Burning (tons)	16.00	1.00	85.00	30.00	6.00		
Incineration (tons)	7.00	1.50	10.00	3.00	3.00		
Solvent Evaporation (tons)				2000.00			
Vessels (Diesel)(10^3gal)	25.00	144.00	65.00	50.00	73.00	1.00	
Railroads (10^3gal)	25.00	65.00	70.00	50.00	75.00		
Diesel Motor Vehicles (10^3gal)	25.00	45.00	325.00	65.00	340.00		
Other(Wood - Residential Heating)(tons)	17.00	0.00	50.00	4.00	2.00		
Gasoline Motor Vehicles (25 mph)	.66	.40	209.00	34.40	19.80		
Gasoline Motor Vehicles (45 mph)	.66	.40	132.00	25.60	23.20		
Other - Wood Fires	17.00	0.00	50.00	4.00	2.00		

Source Category: F2 - Residential Fuel Oil

Data: (1) Bureau of Mines - Mineral Industry Surveys - "Sales of Fuel Oil and Kerosine in 1969"

Kerosine: 2,477,000 barrels
No. 1 : (266,000 + 266,000) barrels
No. 2 : 3,761,000 barrels
No. 3 : 100,000 barrels
No. 4 : 247,000 barrels
No. 5 : 58,000 barrels

$$\text{TOTAL} \times 42 \frac{\text{gallons}}{\text{barrels}} = 301{,}350{,}000 \text{ gallons}$$

Procedure:

(1) Using Bierbaum-Gedgaudas assumption that one-third of the oil is residential

Residential = 1/3 (301,350,000) = 100,450,000 gallons

(2) The APCO format allows for only distillate residential fuel use, therefore -

(total distillate) - (residential fuel) = 188,090,000 gallons

(3) 188,090,000 gallons = commercial and institutional distillate

(4) 12,810,000 gallons residual = commercial and institutional residual fuel oil

(5) The 100,450,000 gallons Residential Fuel Oil is apportioned into counties using:

$$(100{,}450{,}000) \times \left(\frac{\text{NBR housing units using oil in county-1960}}{\text{NBR housing units using oil in state-1960}}\right)$$

Source Category: F3 - Residential Natural Gas

Data: (1) Bureau of Mines - "Minerals Yearbook" (1969) - $18{,}162 \times 10^6$ ft^3 of natural gas.

Procedure:

$$(1) \quad \text{County} = (18{,}162 \times 10^6) \times \frac{\text{NBR gas housing units in county - 1960}}{\text{NBR gas housing units in state - 1960}}$$

Source Category: F4 - Commercial and Institutional Coal

Data: (1) 1970 distribution of bituminous coal - Bureau of Mines
Mr. Westerstraum (557-1350)
1970 Retail tons to South Carolina - 290,000 tons

Procedure.

(1) (Retail coal) - (F1) = F4 = 2/3 (290,000) = 194,300 tons.

(2) County use is apportioned according to Bierbaum and Gedgaudas -

$$\text{County use} = 194{,}300 \text{ tons} \left[\left(1/2 \; \frac{\text{NBR county retailers}}{\text{NBR state retailers}} \right) + 1/2 \left(\frac{\text{NBR county wholesalers}}{\text{NBR state wholesalers}} \right) \right]$$

where:

113,837 = NBR state retailers and proprietors

29,272 = NBR state wholesalers and proprietors

(From Bureau of the Census - 1967)

(3) It was felt that updating the 1967 Census data by interpolation would introduce additional error, therefore, it is assumed that the ratios in (2) are valid for 1970

Source Category: F5 - Commercial and Institutional Residual Oil

Data: Bureau of Mines - Mineral Industry Surveys

Procedure:

(1) See F2.

(2) Apportioning:

$$\text{County} = \left[1/2 \left(\frac{B}{113{,}837} \right) + 1/2 \left(\frac{C}{29{,}272} \right) \right] (12{,}810{,}000 + 5{,}838{,}000 + 4{,}284{,}000) + \frac{E}{57{,}019} (8{,}400{,}000)$$

where:

12,810,000 = gallons residual oil (1969)
8,400,000 = gallons military residual oil use (1969)
5,838,000 = gallons residual oil - miscellaneous use (1969)
4,284,000 = gallons residual oil - oil company use (1969)
B = no. retail employees + proprietors (1967)
C = no. wholesale employees + proprietors (1967)
E = no. military personnel in county (1960)
57,019 = no. military personnel in state (1960)

Source Category: F6 - Commercial and Institutional Distillate Oil

Data: (1) Bureau of Mines - Mineral Industry Surveys

Procedures:

(1) See F2.

(2) Apportioning:

$$\text{County} = \left[1/2 \left(\frac{B}{113{,}837} \right) + 1/2 \left(\frac{C}{29{,}272} \right) \right] (188{,}090{,}000) +$$

$$\frac{E}{57{,}019} \; (6{,}951{,}000)$$

where:

188,090,000 = balance of distillate from F2 plus 462,000 gallons distillate used by oil companies
6,951,000 = gallons distillate used by military for heating (estimated to be 1/2 of total military distillate)

(other parameters = as described in F5)

Source Category: F7 - Commercial and Institutional Natural Gas

Data: (1) Bureau of Mines - "Minerals Yearbook" (1969) - 11,526 x 10^6 ft^3 of natural gas for commercial consumers.

(2) 1967 Census of Manufacturers

Procedure:

$$(1)\quad \text{County} = (11{,}526 \times 10^6) \times \left[\left(1/2\ \frac{\text{NBR county retailers}}{\text{NBR state retailers}}\right) + 1/2\left(\frac{\text{NBR county wholesalers}}{\text{NBR state wholesalers}}\right)\right]$$

where: 113,837 = NBR state retailers and proprietors
29,272 = NBR state wholesalers and proprietors
(from Bureau of Census - 1967)

Source Category: F8 - F11 - Industrial Fuel Use

Data: (1) Bureau of Mines - Mineral Industry Surveys lists industrial use for each fuel.

Procedure:

(1) Total point source industrial fuel use for each fuel and subtract from total industrial fuel use for each fuel.

(2) Distribute remaining fuel into counties using number of manufacturing employees in county (1967) divided by number of manufacturing employees in state (1967) as an apportioning factor.

(3) Adjust county data where local industrial use is known.

Source Category: F12 - LP Gas

Data: (1) Bureau of Mines - Mineral Industry Surveys, "Sales of LP Gas and Ethane in 1969" - 87,323 x 10^3 gallons.

Procedure:

$$(1)\quad \text{County} = \left(87{,}323 \times 10^3\right) \times \frac{\text{NBR LP gas units in county - 1960}}{\text{NBR LP gas units in state - 1960}}$$

Source Category: F13 - Open Burning

Data: (1) South Carolina Solid Waste Disposal Study

Procedure:

(1) Calculate total tons of solid waste generated using EPA emission factors.

county tons generated = county population x 10 lb/capita

(2) Estimate percentage open burned in each county using solid waste study or EPA estimate of 50 percent where no additional information is available.

(3) (solid waste open burned in county) = tons generated x percent open burned.

Source Category: F14 - Incineration

Negligible.

Source Category: F15 - Solvent Evaporation

Data and Procedure:

(1) Dry Cleaning:

Using EPA (Air Pollutant Emission Factors), p. 36, 2 pounds/capita/year HC are emitted from dry cleaning plants in moderate climates. The regional total was obtained by multiplying this factor by the population. The total was apportioned on the basis of population (1970).

(2) Surface Coating

(a) Involving the application of paint, varnish, lacquer and primer. No consumption data could be obtained on a geographical basis.

(3) Petroleum Storage

(a) Bulk storage of gasoline or finished petroleum products -

- Use EPA Emission Factors, p. 58, and 1967 Census of Business Wholesale Trade - Petroleum Bulk Storage Stations and Terminals, Table 4 - "Bulk Storage Capacity by County."

- Assume an insignificant change in storage capacity from 1967-1970 and 25 percent floating roof tanks (source - API Statistical Division).

(4) Gasoline Marketing

- Use p. 40 of EPA Air Pollutant Emissions Factors and 1967 county/state ratios of gasoline sales calculated from 1967 Census of Business - Retail Trade - South Carolina Table 3 - "Counties and Cities of 2500 or More: 1967".

- Apply this ratio to the 1970 state gasoline consumption (phone conversation with Mr. Hodges, API Statistical Division) to obtain 1970 county consumption totals.

- Assume

  (a) Sales ratio is a valid apportioning factor for consumption.
  (b) Sales ratio has not significantly changed from 1967-1970.
  (c) 50 percent splash fill and 50 percent submerged fill.

Source Category: F16 - Diesel Vessels

Insignificant except in Charleston Harbor where vessel emissions are hand calculated.

Source Category: F17 - Diesel Fuel - Railroads

Data: (1) Mineral Industry Surveys-R. R. Distillate Fuel Oil (1969) Table 10, p. 8, of "Sales of Fuel Oil and Kerosine in 1969."

South Carolina = 358 thousand barrels x 42 $\frac{\text{gallon}}{\text{barrel}}$ =

15,036 thousand gallons

Procedure:

(1) Although total state track mileage was available, no data on a county basis were available; therefore, population is used as an apportioning factor except in gridded areas where more detailed information is available from land use surveys.

Source Category: F18 - Diesel Motor Vehicles

Data: (1) Mineral Industry Surveys -"Sales of Fuel Oil and Kerosine in 1969," p. 12, Table 14
"Off Highway Diesel Type" is defined as heavy construction equipment which would still be considered a motor vehicle; therefore, the total figure is used.

Procedure:

(1) Bierbaum and Gedgaudas, p. 31, suggests using gasoline sales apportioning fractions for diesel fuel also.

(2) See F20, F21 for apportioning factors.

Source Category: F19-Other-Wood as a residential heating fuel

Data: (1) The 1960 Census of Housing indicates a significant use of wood as a residential heating fuel. This is most significant in the rural counties. Since the 1970 fuel characteristics from the Census of Housing are not as yet available, it is estimated that five percent of the total 1970 housing units are still using wood. A consumption factor of 1 ton/year/housing unit for wood is estimated from the consumption factor for coal and the BTU value of wood.

Procedure:

(1) $\text{County} = \frac{\text{1960 county wood units}}{\text{1960 state wood units}} \times \text{1970 total consumption}$

1970 consumption = 5% (1970 housing units) x 1 ton/unit

Source Category: F20 ,F21 Gasoline Motor Vehicles

Data: (1) 1967 Census of Business - Retail Trade - Table 3 - gasoline sales by county

(2) 1970 South Carolina gasoline consumption (phone conversation with American Petroleum Institute)

Procedure:

(1) From given data,calculate the following ratios for each county:

(a) $\frac{\text{county sales}}{\text{state sales}}$ (b) $\frac{\text{urban sales}}{\text{total county}}$ (c) $\frac{\text{rural sales}}{\text{total county}}$

(2) Apply 1967 sales ratios obtained in (1) to 1970 state consumption to obtain urban (25 MPH) and rural (45 MPH) consumption for each county.

(3) $\text{Consumption total} \times 12.5 \frac{\text{mi.}}{\text{gal.}} = \frac{\text{vehicle mile}}{\text{year}}$

Source Category: F22 - Wood Fires

Data: (1) South Carolina Forestry Commission - Monthly Fire Report (1970)

(2) U.S. Department of Agriculture - National Forest Service - phone conversation with Mr. Dieterich - 1970 prescribed burning totals.

Procedure:

(1) 5 tons of wood per acre of soft-wood forest (Mr. Dieterich)

(2) Total wood burned = 5 tons/acre x total acres burned in county.

(3) Apportion prescribed burning by number of acres of forest in each county.

3.2.3 Grid Areas Data and Methodology by Source Category

- No numerical land use data were available for Charleston or Greenville-Spartanburg; therefore, land use maps and 1970 Census of Population were used as general sources for apportioning factors.

- Approximately 95 percent of the population of Charleston County is in the grid area and 40 percent of the physical area of the County (Appendix B).

- Approximately 75 percent of the combined population of Greenville and Spartanburg Counties is included in the grid area and 50 percent of the land area of the two counties (Appendix B).

Source Category: F1, F2, F3 - Residential Fuels

Data: (1) population breakdown in the 1970 Census of Population

Procedure:

(1) Use population directly as the apportioning factor for each grid for each fuel. Assume even distribution of fuel types.

Source Category: F4, F5, F6, F7 - Commercial and Institutional Fuels

Data: (1) Commercial zoning

Procedure:

(1) Classify each grid according to the amount of commercial or institutional zoning in the grid as 0, 1, 2, 3, or 4 increasing in commercial density.

(2) Weigh the above factors by the size of the grid as 1, 2, 3, 4, increasing in grid size from 1.56 km^2 to 100 km^2.

(3) Example:

A grid in the central business district would have a commercial density of 4 and a size rating of 1; therefore,

commercial density x size = apportioning factor

4 x 1 = 4

Source Category: F8, F9, F10, F11 - Industrial Non-Point Source Fuels

Data: (1) industrial zoning

Procedure:

(1) See F4 - F7 above.

(2) Example:

An industrial park in a size 2 grid =

(industrial density) x (size) = apportioning factor

4 x 2 = 8

Source Category: F12 - LP Gas

Data: (1) Land use and road maps

Procedure:

(1) Use the population of outlying grids, especially farm lands as the apportioning factor.

Source Category: F13 - Open Burning

Assume no open burning of solid waste is allowed inside grid areas.

Source Category: F14 - Incineration

Negligible.

Source Category: F15 - Solvent Evaporation- Gasoline Marketing and Dry Cleaning

Data: (1) Population

Procedure:

(1) Use the population of each grid as the apportioning factor.

Source Category: F16 - Vessels

Data: (1) Charleston Harbor study.

Procedure:

(1) Harbor study data indicate Charleston harbor is the only significant area of vessel emissions; therefore, they are hand calculated for the harbor area and considered as zero elsewhere.

(2) Harbor data:

Ships	Fuel
1403 freighters	766,500 gallons diesel
280 tankers	2,299,500 gallons residual
10 tugs	

Source Category: F17 - Railroads

Data: (1) Kilometer of track in each grid.

(2) Switch yard fuel consumption obtained by the State by surveying each railroad.

Procedure:

(1) Compute fuel consumption in each switch yard.

(2) Distribute remaining fuel by using kilometer of track in each grid as apportioning factor.

Source Category: F18 - Diesel Motor Vehicles

Data: (1) Traffic Flow Diagrams - State Highway Commission

Procedure:

(1) See F20, F21.

Source Category: F19 - Residential Wood Fuel

Data: (1) Population

Procedure:

(1) Consider insignificant in the grid areas.

Source Category: F20, F21 - Automobiles

Data: (1) Traffic Flow Diagrams - State Highway Commission
(2) Population

Procedure:

(1) Traffic flow diagrams could not be used directly to calculate vehicle miles in each grid; therefore, the population of the downtown grids was used directly as the apportioning factor for F20.

(2) In the outlying grids, traffic flow is not directly related to population; therefore, the average traffic volume for an outlying grid was related to the population of an inner grid with a similar traffic volume.

Source Category: F22 - Wood Fires

Data: Land use maps

Procedure:

(1) Apply a weighting factor of forest density to each grid and a grid size weighting factor.

(2) Example:

forest density x size = apportioning factor

3 x 2 = 6

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4. REGIONAL SUMMARY TABLES

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
AUGUSTA-AIKEN INTERSTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	19	73	96	23	10	3843	tons
Distillate Oil	37	21	19	11	44	7401	M gal
Natural Gas	12	0	12	5	46	1232	MMCF
Wood	35	0	102	8	4	4082	tons
Other - LP Gas	42	0	44	17	137	13653	M gal
Total	145	94	273	64	241		
Comm., Instl. & Ind.							
Bituminous Coal - Area	1229	660	310	81	203	34713	tons
Bituminous Coal - Point	8321	12871	461	186	8424	681718	tons
Distillate Oil - Area	16	223	0	2	42	1405	M gal
Distillate Oil - Point	7	6	0	1	28	929	M gal
Residual Oil - Area	92	756	1	18	370	12345	M gal
Residual Oil - Point	59	1281	0	10	207	6920	M gal
Natural Gas - Area	35	1	9	65	301	3876	MMCF
Natural Gas - Point	17	0	0	39	171	1957	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	908	14	3846	371	275	107500	tons
Other - Point							
Total	10684	15812	4627	773	10021		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	254	5115	127	38	2286	253949	tons
Distillate Oil	0	0	0	0	0		
Residual Oil	0	0	0	0	0		
Natural Gas	1	3	2	228	2223	11401	MMCF
Other							
Total	255	5118	129	266	4509		
TOTAL FUEL COMBUSTION	11626	21024	5029	1103	14771		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	6558	350	537	4751	488		
Area Sources	0	0	0	3138	0	3138	tons
Point Sources	6558	350	537	1613	488		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	60	7	589	49	4	7900	tons
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	1668	106	8967	3165	633	211000	tons
On-Site - Point Source	202	5	401	141	28	9415	tons
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	1950	118	9957	3355	665		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	1803	1093	387342	180099	62220	5465245	M ve m
Motor Vehicles - Diesel	103	186	1340	268	1402	8247	M gal
Aircraft (Point Source)	0	0	0	0	0		
Railroad	16	40	44	31	47	1245	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	1922	1319	388726	180398	63669		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	2057	0	6050	484	242	242000	tons
TOTAL MISCELLANEOUS	2057	0	6050	484	242		
GRAND TOTAL							
Area Source	7184	3159	404336	187415	65701		
Point Source	16387	19652	5963	2676	14134		
Total	23571	22811	410299	190091	79835		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
SAVANNAH-BEAUFORT INTERSTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	2	7	9	2	1	368	tons
Distillate Oil	18	10	9	5	22	3640	M gal
Natural Gas	1	0	1	0	4	108	MMCF
Wood	22	0	66	5	3	2636	tons
Other - LP Gas	20	0	21	8	67	6711	M gal
Total	63	17	106	20	97		
Comm., Instl. & Ind.							
Bituminous Coal - Area	265	173	125	31	44	9083	tons
Bituminous Coal - Point	0	0	0	0	0		
Distillate Oil - Area	25	345	0	3	65	2168	M gal
Distillate Oil - Point	0	0	0	0	0		
Residual Oil - Area	46	375	1	9	186	6180	M gal
Residual Oil - Point	29	509	0	3	75	2502	M gal
Natural Gas - Area	8	0	3	12	62	891	MMCF
Natural Gas - Point	13	0	0	38	119	1364	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	87	1	1625	1380	130	25000	tons
Other - Point							
Total	473	1403	1754	1476	681		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	9066	20224	360	108	6473	719208	tons
Distillate Oil	0	0	0	0	0		
Residual Oil	0	0	0	0	0		
Natural Gas	13	2	1	124	1212	6214	MMCF
Other							
Total	9079	20226	361	232	7685		
TOTAL FUEL COMBUSTION	9615	21646	2221	1728	8463		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	0	0	0	4650	0		
Area Sources	0	0	0	658	0	658	tons
Point Sources	0	0	0	3992	0		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	108	5	366	28	33	10250	tons
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	776	49	4123	1455	291	97000	tons
On-Site - Point Source	56	4	28	105	21	7000	tons
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	940	58	4517	1588	345		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	1008	611	208609	39893	35108	3053490	M ve mi
Motor Vehicles - Diesel	56	100	722	144	756	4445	M gal
Aircraft (Point Source)	262	49	754	1223	122		
Railroad	8	20	22	15	23	618	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	1334	780	210107	41275	36009		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	1811	0	5325	426	213	213000	tons
TOTAL MISCELLANEOUS	1811	0	5325	426	213		
GRAND TOTAL							
Area Source	4066	1690	219036	42666	36845		
Point Source	9634	20794	3134	7001	8185		
Total	13700	22484	222170	49667	45030		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
METROPOLITAN CHARLOTTE INTERSTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	54	205	270	65	27	10806	tons
Distillate Oil	36	21	18	11	43	7119	M gal
Natural Gas	16	0	17	7	62	1650	MMCF
Wood	18	0	54	4	2	2156	tons
Other - LP Gas	13	0	14	5	42	4237	M gal
Total	137	226	373	92	176		
Comm., Instl. & Ind.							
Bituminous Coal - Area	2138	920	301	84	351	14685	tons
Bituminous Coal - Point	4648	9223	245	95	3278	382418	tons
Distillate Oil - Area	14	195	0	2	37	1228	M gal
Distillate Oil - Point	1	99	0	1	18	600	M gal
Residual Oil - Area	175	1428	2	35	699	23303	M gal
Residual Oil - Point	53	2788	2	28	570	18995	M gal
Natural Gas - Area	59	2	8	119	533	5489	MMCF
Natural Gas - Point	39	2	2	205	1255	10258	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	450	30	30	30	150	30000	tons
Other - Point (Anthracite Coal)	2	239	14	4	8	2800	tons
Total	7579	14926	604	603	6899		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	0	0	0	0	0		
Distillate Oil	0	0	0	0	0		
Residual Oil	0	0	0	0	0		
Natural Gas	0	0	0	0	0		
Other							
Total	0	0	0	0	0		
TOTAL FUEL COMBUSTION	7716	15152	977	695	7075		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	3494	768	10747	1258	0		
Area Sources	0	0	0	1210	0	1210	tons
Point Sources	3494	768	10747	48	0		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	0	0	0	0	0		
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	868	54	4613	1628	326	108530	tons
On-Site - Point Source	32	3	96	32	8	3185	tons
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	900	57	4709	1660	334		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	1141	692	282417	43254	5963	3458894	M ve mi
Motor Vehicles - Diesel	73	131	949	190	993	5841	M gal
Aircraft (Point Source)	0	0	0	0	0		
Railroad	14	35	38	27	41	1088	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	1228	858	283404	43471	6997		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	1471	0	4325	346	173	173000	tons
TOTAL MISCELLANEOUS	1471	0	4375	346	173		
GRAND TOTAL							
Area Source	6090	3683	293026	46987	9292		
Point Source	8719	13152	11136	443	5287		
Total	14809	16835	304162	47430	14579		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
CAMDEN-SUMTER INTRASTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	21	79	105	25	10	4181	tons
Distillate Oil	29	17	15	9	35	5819	M gal
Natural Gas	2	0	3	1	10	261	MMCF
Wood	33	0	96	8	4	3835	tons
Other - LP Gas	11	0	12	5	36	3623	M gal
Total	96	96	231	48	95		
Comm., Instl. & Ind.							
Bituminous Coal - Area	740	423	237	61	122	22270	tons
Bituminous Coal - Point	1567	4091	184	92	1379	183850	tons
Distillate Oil - Area	22	299	0	3	56	1882	M gal
Distillate Oil - Point	1	25	0	1	21	697	M gal
Residual Oil - Area	74	604	1	15	297	9860	M gal
Residual Oil - Point	52	1003	0	8	175	5839	M gal
Natural Gas - Area	22	1	6	38	178	2381	MMCF
Natural Gas - Point	25	1	0	74	319	3649	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	273	25	41	41	206	41164	tons
Other - Point (LP Gas)	1	0	0	2	5	358	M gal
Total	2777	6472	469	335	2758		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	0	0	0	0	0		
Distillate Oil	0	0	0	0	0		
Residual Oil	0	0	0	0	0		
Natural Gas	0	0	0	0	0		
Other							
Total	0	0	0	0	0		
TOTAL FUEL COMBUSTION	2873	6543	700	383	2853		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	21682	0	565	13527	29		
Area Sources	0	0	0	1178	0	1178	tons
Point Sources	21682	0	565	12349	29		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source							
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	1256	79	6673	2355	471	157000	tons
On-Site - Point Source	17	2	2230	187	17	34000	tons
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	1273	81	8903	2542	488		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	1440	872	310509	38432	59642	436500	M ve mi
Motor Vehicles - Diesel	90	162	1173	235	1227	7218	M gal
Aircraft (Point Source)	1271	250	7872	3485	547		
Railroad	11	30	32	23	34	917	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	2812	1314	319586	42175	61450		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	1369	0	4025	322	161	161000	tons
TOTAL MISCELLANEOUS	1369	0	4025	322	161		
GRAND TOTAL							
Area Source	5120	2566	322887	42710	62283		
Point Source	24889	5397	10892	16239	2698		
Total	30009	7963	333779	58949	64981		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
CHARLESTON INTRASTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	5	19	25	10	3	999	tons
Distillate Oil	62	35	31	18	74	12362	M gal
Natural Gas	47	1	49	19	183	4873	MMCF
Wood	29	0	85	7	3	3399	tons
Other - LP Gas	41	0	44	17	135	13550	M gal
Total	184	55	234	71	398		
Comm., Instl. & Ind.							
Bituminous Coal - Area	910	714	667	164	211	37592	tons
Bituminous Coal - Point	193	617	27	14	203	70080	tons
Distillate Oil - Area	60	818	0	8	155	5148	M gal
Distillate Oil - Point	0	0	0	0	0	0	
Residual Oil - Area	207	1677	10	61	914	27648	M gal
Residual Oil - Point	102	1993	1	13	267	8923	M gal
Natural Gas - Area	30	0	15	37	199	3673	MMCF
Natural Gas - Point	265	9	6	588	2572	29398	MMCF
Process Gas - Point	0	0	0	0	0	0	
Wood - Area							
Wood - Point	0	0	0	0	0	0	
Other - Point (Anthracite Coal)	1	3	13	0	0	280	tons
Total	1768	5831	739	885	4521		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0	0	
Bituminous Coal	4500	21375	375	112	6750	750000	tons
Distillate Oil	0	0	0	0	0	0	
Residual Oil	140	14290	2	113	3622	68993	M gal
Natural Gas	23	1	1	62	606	3108	MMCF
Other							
Total	4663	35666	378	287	10978		
TOTAL FUEL COMBUSTION	6615	41552	1351	1243	15897		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	140461	3	49	5244	413		
Area Sources	0	0	0	1794	0		
Point Sources	140461	3	49	3450	413	1794	tons
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	0	0	0	0	0	0	
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	1376	86	7110	2580	516	264000	tons
On-Site - Point Source	0	0	0	0	0	0	
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	1376	86	7110	2580	516		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	3426	2078	708758	135559	119404	10382225	M ve mi
Motor Vehicles - Diesel	151	271	1957	391	2047	12044	M gal
Aircraft (Point Source)	4727	1189	23915	11120	2892		
Railroad	30	77	83	59	89	2377	M gal
Vessels	0	0	0	0	0	0	
Other							
TOTAL TRANSPORTATION	8334	3615	734713	147129	124432		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn	1777	0	5225	418	209	209000	tons
TOTAL MISCELLANEOUS	1777	0	5225	418	209		
GRAND TOTAL							
Area Source	8151	5777	724159	141142	124142		
Point Source	150412	39480	24389	15472	17325		
Total	158563	45257	748548	156614	141467		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
CHARLESTON COUNTY AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	4	16	21	9	2	835	Tons
Distillate Oil	54	31	27	16	64	10780	M Gal
Natural Gas	43	1	45	18	168	4488	MMCF
Wood	13	0	37	3	1	1490	Tons
Other - LP Gas	26	0	28	11	86	8613	M Gal
Total	140	48	158	57	321		
Comm., Instl. & Ind.							
Bituminous Coal - Area	786	534	608	149	191	33322	Tons
Bituminous Coal - Point	193	617	27	14	203	70080	
Distillate Oil - Area	61	793	0	9	174	5789	M Gal
Distillate Oil - Point	0	3	0	0	1	45	M Gal
Residual Oil - Area	182	1489	10	56	809	24168	M Gal
Residual Oil - Point	91	1830	1	12	238	7945	M Gal
Natural Gas - Area	27	0	16	31	170	3254	MMCF
Natural Gas - Point	265	9	6	588	2572	29398	MMCF
Process Gas - Point	0	0	0	0	0	0	
Wood - Area							
Wood - Point	0	0	0	0	0	0	
Other - Point (Anthracite Coal)	1	3	13	0	0	280	Tons
Total	1606	5278	681	859	4358		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0	0	
Bituminous Coal	0	0	0	0	0	0	
Distillate Oil	0	0	0	0	0	0	
Residual Oil	116	6360	1	73	1527	29093	M Gal
Natural Gas	23	1	1	62	606	3108	MMCF
Other							
Total	139	6361	2	135	2133		
TOTAL FUEL COMBUSTION	1885	11687	841	1051	6812		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (TOTAL)	9621	3	49	4686	413		
Area Sources	0	0	0	1236	0	1236	Tons
Point Sources	9621	3	49	3450	413		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	0	0	0	0	0	0	
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	736	46	3910	1380	276	92000	Tons
On-Site - Point Source	0	0	0	0	0	0	
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	736	46	3910	1380	276	92000	Tons
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	2554	1548	530838	101355	88896	7739616	M ve mi
Motor Vehicles - Diesel	121	218	1574	314	1647	9687	M Gal
Aircraft (Point Source)	4727	1189	23915	11120	2892		
Railroad	23	61	75	46	70	1864	M Gal
Vessels							
Other							
TOTAL TRANSPORTATION	7425	3016	556402	112835	93505		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	474	61	75	46	70	1864	Tons
TOTAL MISCELLANEOUS	474	61	75	46	70		
GRAND TOTAL							
Area Source	5104	4798	537264	104679	92624		
Point Source	15037	10015	24013	15319	8452		
Total	20141	14813	561277	119998	101076		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
CHARLESTON GRID AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

(Area Source Only)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	4	15	20	9	2	793	tons
Distillate Oil	51	29	26	15	61	10241	M gal
Natural Gas	41	1	43	17	160	4264	MMCF
Wood	0	0	0	0	0		
Other - LP Gas	5	0	6	2	17	1723	M gal
Total	101	45	95	43	240		
Comm., Instl. & Ind.							
Bituminous Coal - Area	704	584	577	141	177	30721	tons
Bituminous Coal - Point							
Distillate Oil - Area	52	714	0	7	135	4493	M gal
Distillate Oil - Point							
Residual Oil - Area	179	1451	10	56	802	23932	M gal
Residual Oil - Point							
Natural Gas - Area	24	0	15	27	150	2985	M gal
Natural Gas - Point							
Process Gas - Point							
Wood - Area							
Wood - Point							
Other - Point							
Total	1059	2749	602	231	1264		
Steam Electric Power Plant							
Anthracite Coal							
Bituminous Coal							
Distillate Oil							
Residual Oil							
Natural Gas							
Other							
Total							
TOTAL FUEL COMBUSTION	1160	2793	697	274	1504		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	0	0	0	1269	0		
Area Sources	0	0	0	1269	0	1269	tons
Point Sources							
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source							
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	0	0	0	0	0		
On-Site - Point Source							
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	0	0	0	0	0		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	2172	1317	453319	86405	75502	6581000	M ve mi
Motor Vehicles - Diesel	109	196	1417	283	1482	8718	M gal
Aircraft							
Railroad	16	42	45	32	48	1290	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	2297	1555	454781	86720	77032		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	26	0	75	6	3	3000	tons
TOTAL MISCELLANEOUS	26	0	75	6	3		
GRAND TOTAL							
Area Source	3483	3348	455553	88269	78539		
Point Source							
Total	3483	3348	455553	88269	78539		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
COLUMBIA INTRASTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	43	163	215	52	21	8596	tons
Distillate Oil	70	40	35	21	84	13981	M gal
Natural Gas	31	1	33	13	124	3309	MMCF
Wood	32	0	94	8	4	3778	tons
Other - LP Gas	23	0	24	9	75	7538	M gal
Total	119	204	401	103	308		
Comm., Instl. & Ind.							
Bituminous Coal - Area	1546	1125	965	237	256	59249	tons
Bituminous Coal - Point	577	280	13	7	98	13057	tons
Distillate Oil - Area	85	1173	1	11	221	7376	M gal
Distillate Oil - Point	13	50	6	4	19	2438	M gal
Residual Oil - Area	299	2422	4	60	1197	39889	M gal
Residual Oil - Point	8	129	0	1	23	752	M gal
Natural Gas - Area	48	2	26	64	330	4204	MMCF
Natural Gas - Point	73	2	3	160	734	8170	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	0	0	0	0	0		
Other - Point	25	64	210	43	169		
Total	2674	5247	1228	587	3047		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	7484	13138	302	90	5426	594739	tons
Distillate Oil	0	0	0	0	0		
Residual Oil	0	0	0	0	0		
Natural Gas	1	2	2	159	1550	7948	MMCF
Other							
Total	7485	13140	304	249	6976		
TOTAL FUEL COMBUSTION	10278	18591	1933	939	10331		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	78307	0	0	5592	0		
Area Sources	0	0	0	2450	0	2450	tons
Point Sources	78307	0	0	3142	0		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	221	8	155	22	39	18500	tons
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	3584	224	19040	6720	1344	448000	tons
On-Site - Point Source	9	2	25	2	1	1000	tons
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	3814	234	19220	6744	1384		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	3365	2039	723213	136255	116055	10196094	M ve mi
Motor Vehicles - Diesel	217	390	2817	563	2947	17338	M gal
Aircraft (Point Source)	690	222	13224	2786	269		
Railroad	27	70	76	54	81	2158	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	4299	2721	739330	139658	119352		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	1734	0	5100	408	204	204000	tons
TOTAL MISCELLANEOUS	1734	0	5100	408	204		
GRAND TOTAL							
Area Source	11024	7649	751643	146925	122943		
Point Source	87408	13897	13940	6416	8328		
Total	98432	21546	765583	153341	131271		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
RICHLAND - LEXINGTON COUNTIES AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	35	133	175	42	18	6994	Tons
Distillate Oil	62	36	31	19	75	12457	M Gal
Natural Gas	27	1	28	11	106	2813	MMCF
Wood	21	0	62	5	2	2480	Tons
Other - LP Gas	18	0	18	7	58	5802	M Gal
Total	163	170	314	84	259		
Comm., Instl. & Ind.							
Bituminous Coal - Area	1250	870	896	219	206	50983	Tons
Bituminous Coal - Point	577	280	13	7	98	13057	Tons
Distillate Oil - Area	280	2258	3	56	1117	37229	M Gal
Distillate Oil - Point	13	50	6	4	19	2438	M Gal
Residual Oil - Area	81	1125	1	17	340	11338	M Gal
Residual Oil - Point	8	129	0	1	23	752	M Gal
Natural Gas - Area	41	1	23	51	275	4477	MMCF
Natural Gas - Point	64	2	3	140	617	7155	MMCF
Process Gas - Point							
Wood - Area							
Wood - Point	0	0	0	0	0	0	Tons
Other - Point	25	64	210	43	169		
Total	2339	4779	1155	538	2864		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0	0	Tons
Bituminous Coal	524	11169	262	78	4714	523750	Tons
Distillate Oil	0	0	0	0	0	0	M Gal
Residual Oil	0	0	0	0	0	0	M Gal
Natural Gas	1	2	2	159	1550	7948	MMCF
Other							
Total	525	11171	264	237	6264		
TOTAL FUEL COMBUSTION	3027	16120	1733	859	9287		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (TOTAL)	27913	0	0	5246	0		
Area Sources	0	0	0	2104	0	2104	Tons
Point Sources	27913	0	0	3142	0		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	0	0	0	0	0	0	Tons
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	3224	202	17128	6054	1209	403000	Tons
On-Site - Point Source	0	0	0	0	0	0	Tons
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	3224	202	17128	6054	1209	403000	Tons
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	2930	1776	630469	118734	101041	8879526	M ve mi
Motor Vehicles - Diesel	194	349	2520	504	2637	15509	M Gal
Aircraft (Point Source)	690	222	13224	2786	269		
Railroad	23	61	65	47	70	1872	M Gal
Vessels	0	0	0	0	0	0	M Gal
Other							
TOTAL TRANSPORTATION	3837	2408	646278	122071	104017		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	817	0	2400	192	96	96000	Tons
TOTAL MISCELLANEOUS	817	0	2400	192	96	96000	Tons
GRAND TOTAL							
Area Source	9003	6812	653819	128053	107250		
Point Source	29815	11918	13720	6360	7459		
Total	38318	18730	667539	134413	114709		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
FLORENCE INTRASTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	58	219	288	69	29	11504	tons
Distillate Oil	47	27	24	14	56	9401	M gal
Natural Gas	6	0	7	3	25	664	MMCF
Wood	45	0	133	11	5	5316	tons
Other - LP Gas	21	0	22	9	70	6977	M gal
Total	177	246	474	106	185		
Comm., Instl. & Ind.							
Bituminous Coal - Area	1542	890	511	130	254	46869	tons
Bituminous Coal - Point	129	422	22	11	167	22220	tons
Distillate Oil - Area	27	372	0	4	70	2337	M gal
Distillate Oil - Point	0	0	0	0	0		
Residual Oil - Area	149	1215	2	30	597	19887	M gal
Residual Oil - Point	133	2734	2	22	437	14563	M gal
Natural Gas - Area	45	1	14	79	371	4974	MMCF
Natural Gas - Point	42	0	0	111	485	5550	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	545	121	642	153	237	114680	tons
Other - Point							
Total	2612	5755	1193	540	2618		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	3755	6794	149	45	2682	298000	tons
Distillate Oil	0	0	0	0	0		
Residual Oil	1	252	0	3	67	1268	M gal
Natural Gas	3	1	0	46	446	2288	MMCF
Other							
Total	3759	7047	149	94	3195		
TOTAL FUEL COMBUSTION	6548	13048	1816	740	5998		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	23839	750	11580	2890	0		
Area Sources	0	0	0	2108	0	2108	tons
Point Sources	23839	750	11580	782	0		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	100	12	894	76	7	13750	tons
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	2192	137	11645	4110	822	274000	tons
On-Site - Point Source	0	0	0	0	0		
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	2292	149	12539	4186	829		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	2552	1608	562357	106522	91825	8037338	M ve mi
Motor Vehicles - Diesel	132	237	1715	343	1794	10554	M gal
Aircraft (Point Source)	0	0	0	0	0		
Railroad	19	50	53	38	57	1526	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	2703	1895	564125	106903	93676		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	1989	0	5850	468	234	234000	tons
TOTAL MISCELLANEOUS	1989	0	5850	468	234		
GRAND TOTAL							
Area Source	8824	4756	582621	113938	96209		
Point Source	28547	11086	13289	1249	4528		
Total	37371	15842	595910	115187	100737		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
GREENVILLE-SPARTANBURG INTRASTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	186	706	929	223	93	37155	Tons
Distillate Oil	156	89	78	46	184	31035	M gal
Natural Gas	40	1	41	16	156	4155	MMCF
Wood	32	0	93	7	4	3728	Tons
Other - LP Gas	48	0	51	20	159	15946	M gal
Total	462	796	1192	312	596		
Comm., Instl. & Ind.							
Bituminous Coal - Area	5723	2945	1201	318	845	154910	Tons
Bituminous Coal - Point	3045	2562	101	51	758	90979	Tons
Distillate Oil - Area	86	1188	0	12	224	7475	M gal
Distillate Oil - Point	12	24	0	3	48	1573	M gal
Residual Oil - Area	461	3752	5	86	1842	61416	M gal
Residual Oil - Point	206	3314	1	28	561	18651	M gal
Natural Gas - Area	165	5	41	299	1389	18103	MMCF
Natural Gas - Point	48	2	1	118	513	6223	MMCF
Process Gas - Point	0	0	0	0	0	0	
Wood - Area							
Wood - Point	400	0	32	32	160	32000	Tons
Other - Point	15	589	12	2	13		
Total	10161	14381	1394	949	6353		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0	0	
Bituminous Coal	9171	14212	399	130	6657	748000	Tons
Distillate Oil	0	0	0	0	0	0	
Residual Oil	0	0	0	0	0	0	
Natural Gas	4	2	1	146	1419	7278	MMCF
Other							
Total	9175	14214	400	276	8076		
TOTAL FUEL COMBUSTION	19798	29391	2986	1537	15025		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	39868	0	2476	14259	1		
Area Sources	0	0	0	6706	1	6706	Tons
Point Sources	39868	0	2476	7553	1		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	0	0	0	0	0	0	
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	2624	164	13940	4920	984	368000	Tons
On-Site - Point Source	5	0	27	9	0	625	Tons
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	2629	164	13967	4929	984		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	7648	4635	1624230	307455	264634	23173921	M ve mi
Motor Vehicles - Diesel	385	692	4997	1000	5222	30751	M gal
Aircraft (Point Source)	187	65	4639	1109	108		
Railroad	103	268	289	206	309	8240	M gal
Vessels	0	0	0	0	0	0	
Other							
TOTAL TRANSPORTATION	8323	5660	1634155	309770	270273		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn	1816	0	5340	427	214	213600	Tons
TOTAL MISCELLANEOUS	1816	0	5340	427	214		
GRAND TOTAL							
Area Source	19473	14445	1651235	321741	276259		
Point Source	52961	20770	7689	9181	10238		
Total	72434	35215	1658924	330922	286497		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
GREENVILLE-SPARTANBURG COUNTIES AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	133	506	665	159	66	26611	Tons
Distillate Oil	109	63	55	32	129	25755	M Gal
Natural Gas	17	0	17	7	67	1784	MMCF
Wood	12	0	36	3	1	1424	Tons
Other - LP Gas	32	0	35	13	107	10671	M Gal
Total	303	569	808	214	370		
Comm., Instl. & Ind.							
Bituminous Coal - Area	3551	1869	827	218	487	98396	Tons
Bituminous Coal - Point	2459	1406	74	37	558	74400	Tons
Distillate Oil - Area	139	1418	1	25	484	16134	M gal
Distillate Oil - Point	12	24	0	3	47	1555	M Gal
Residual Oil - Area	281	2383	3	55	1099	36641	M Gal
Residual Oil - Point	162	2517	1	22	439	14606	M Gal
Natural Gas - Area	110	4	32	193	909	12118	MMCF
Natural Gas - Point	38	2	1	83	364	4530	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	400	0	32	32	160	3200	Tons
Other - Point	8	567	4	0	8	1600	Tons
Total	7160	10190	975	668	4555		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	1950	950	50	25	375	50000	Tons
Distillate Oil	0	0	0	0	0		
Residual Oil	0	0	0	0	0		
Natural Gas	0	0	0	0	0		
Other							
Total	1950	950	50	25	375		
TOTAL FUEL COMBUSTION	9413	11709	1833	907	5300		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (TOTAL)	11419	0	2396	8619	16		
Area Sources	0	0	0	2869	0	2869	Tons
Point Sources	11419	0	2396	5750	16		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	0	0	0	0	0		
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	1288	81	6843	2415	483	161000	Tons
On-Site - Point Source	0	0	0	0	0		
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	1288	81	6843	2415	483		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	5360	3249	1132263	214788	185744	16241916	M ve mi
Motor Vehicles - Diesel	264	474	3424	685	3576	21072	M Gal
Aircraft (Point Source)	187	65	4639	1109	108		
Railroad	85	223	240	171	256	6837	M Gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	5896	4011	1140566	216753	189684		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn	141	0	415	33	17	16600	Tons
TOTAL MISCELLANEOUS	141	0	415	33	17		
GRAND TOTAL							
Area Source	11522	10270	1144856	221666	193425		
Point Source	16635	5531	7197	7061	2075		
Total	28157	15801	1152053	228727	195500		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
GREENVILLE-SPARTANBURG GRID AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

(Area Source Only)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	100	381	501	120	50	20044	tons
Distillate Oil	82	47	41	24	96	16316	M gal
Natural Gas	13	0	13	5	50	1338	MMCF
Wood	0	0	0	0	0		
Other - LP Gas	24	0	26	10	80	8003	M gal
Total	219	428	581	159	276		
Comm., Instl. & Ind.							
Bituminous Coal - Area	2663	1402	620	163	340	73797	tons
Bituminous Coal - Point							
Distillate Oil - Area	51	701	0	7	132	4410	M gal
Distillate Oil - Point							
Residual Oil - Area	264	2149	3	53	1055	35171	M gal
Residual Oil - Point							
Natural Gas - Area	83	3	24	145	682	9088	MMCF
Natural Gas - Point							
Process Gas - Point							
Wood - Area							
Wood - Point							
Other - Point							
Total	3061	4255	647	368	2209		
Steam Electric Power Plant							
Anthracite Coal							
Bituminous Coal							
Distillate Oil							
Residual Oil							
Natural Gas							
Other							
Total							
TOTAL FUEL COMBUSTION	3280	4683	1228	527	2485		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	0	0	0	2186	0		
Area Sources	0	0	0	2186	0	2186	tons
Point Sources							
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source							
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	0	0	0	0	0		
On-Site - Point Source							
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	0	0	0	0	0		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	4824	2924	1019041	193310	167170	14617769	M ve mi
Motor Vehicles - Diesel	211	379	2739	548	2860	16858	M gal
Aircraft							
Railroad	81	211	227	162	243	6477	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	5116	3514	1022007	194020	170273		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	141	0	415	33	17	16600	tons
TOTAL MISCELLANEOUS	141	0	415	33	17		
GRAND TOTAL							
Area Source	8537	8197	1023650	196766	172772		
Point Source							
Total	8537	8197	1023650	196766	172772		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
GREENWOOD INTRASTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	35	132	174	42	17	6942	tons
Distillate Oil	25	14	12	7	30	4945	M gal
Natural Gas	17	1	18	7	66	1767	MMCF
Wood	27	0	78	6	3	3134	tons
Other - LP Gas	18	0	19	7	60	5967	M gal
Total	122	147	301	69	176		
Comm., Instl. & Ind.							
Bituminous Coal - Area	1504	721	214	59	248	37938	tons
Bituminous Coal - Point	562	597	24	12	179	23867	tons
Distillate Oil - Area	10	139	0	1	26	874	M gal
Distillate Oil - Point	1	4	0	0	6	199	M gal
Residual Oil - Area	62	513	1	13	248	8272	M gal
Residual Oil - Point	29	465	0	4	76	2534	M gal
Natural Gas - Area	43	1	6	84	375	4574	MMCF
Natural Gas - Point	29	0	0	68	298	3391	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	69	0	1087	83	14	22250	tons
Other - Point							
Total	2309	2240	1332	324	1470		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	11452	5962	79	24	1415	157200	tons
Distillate Oil	0	0	0	0	0		
Residual Oil	1	31	0	0	8	154	M gal
Natural Gas	0	0	0	1	11	56	MMCF
Other							
Total	11453	5993	79	25	1434		
TOTAL FUEL COMBUSTION	13884	8380	1712	418	3080		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	39192	0	0	1306	0		
Area Sources	0	0	0	931	0	931	tons
Point Sources	39192	0	0	375	0		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	0	0	0	0	0		
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	1272	80	6758	2385	477	159000	tons
On-Site - Point Source	17	2	1004	73	0	5762	tons
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	1289	82	7762	2458	477		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	1139	723	257082	48385	41117	3614949	M ve mi
Motor Vehicles - Diesel	71	127	918	184	961	5652	M gal
Aircraft (Point Source)	0	0	0	0	0		
Railroad	11	30	32	23	34	919	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	1221	880	258032	48592	42112		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn.	1726	0	5075	406	203	203000	tons
TOTAL MISCELLANEOUS	1726	0	5075	406	203		
GRAND TOTAL							
Area Source	5960	2481	270387	52540	43865		
Point Source	51352	7061	2194	640	2007		
Total	57312	9342	272581	53180	45872		

EMISSIONS INVENTORY SUMMARY FOR THE STATE OF SOUTH CAROLINA
GEORGETOWN INTRASTATE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

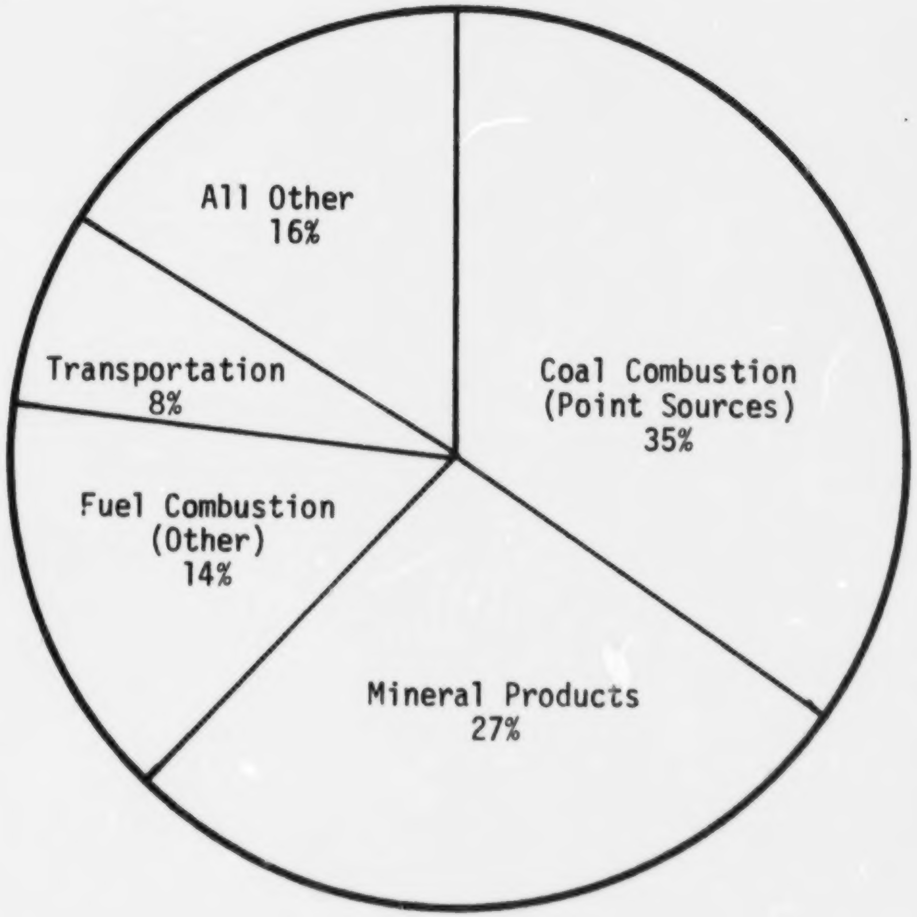
SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
FUEL COMBUSTION							
Residential Fuel - Area Source							
Bituminous Coal	8	30	39	9	4	1561	tons
Distillate Oil	24	14	12	7	28	4727	M gal
Natural Gas	1	0	1	0	3	87	MMCF
Wood	32	0	94	8	4	3754	tons
Other - LP Gas	31	0	32	13	101	10083	M gal
Total	96	44	178	37	140		
Comm., Instl. & Ind.							
Bituminous Coal - Area	427	288	223	55	71	15156	tons
Bituminous Coal - Point	0	0	0	0	0		
Distillate Oil - Area	17	230	0	2	43	1444	M gal
Distillate Oil - Point	0	0	0	0	0		
Residual Oil - Area	68	546	1	13	269	8991	M gal
Residual Oil - Point	788	16824	10	148	352	98777	M gal
Natural Gas - Area	13	2	58	19	50	1350	MMCF
Natural Gas - Point	1	0	0	3	12	140	MMCF
Process Gas - Point	0	0	0	0	0		
Wood - Area							
Wood - Point	245	0	183	117	553	111720	tons
Other - Point (Black Liquor)	170	453	453	1535	564	1037000	tons
Total	1729	18343	928	1892	1914		
Steam Electric Power Plant							
Anthracite Coal	0	0	0	0	0		
Bituminous Coal	2250	10688	188	56	3375	375000	tons
Distillate Oil	0	0	0	0	0		
Residual Oil	0	0	0	0	0		
Natural Gas	0	0	0	0	0		
Other							
Total	2250	10688	188	56	3375		
TOTAL FUEL COMBUSTION	4075	29075	1294	1985	5429		

EMISSIONS INVENTORY SUMMARY (continued)

SOURCE CATEGORY	TONS OF POLLUTANTS/YEAR					FUEL ETC.	
	Part.	SO_2	CO	HC	NO_x	Quantity	Units
PROCESS LOSSES (Total)	76152	0	1712	4493	0		
Area Sources	0	0	0	3145	0	3145	tons
Point Sources	76152	0	1712	1348	0		
SOLID WASTE DISPOSAL							
Incineration							
On-Site - Area Source							
On-Site - Point Source	9	1	1179	99	9	18000	tons
Municipal, etc. - Point Source							
Open Burning							
On-Site - Area Source	1360	85	7225	2550	510	170000	tons
On-Site - Point Source	0	0	0	0	0		
Dumps - Area Source							
Dumps - Point Source							
Other - Area Source							
Other - Point Source							
TOTAL SOLID WASTE DISPOSAL	1369	86	8404	2649	519		
TRANSPORTATION - Area Source							
Motor Vehicles - Gasoline	2665	1616	605268	111639	90516	8077669	M ve mi
Motor Vehicles - Diesel	70	126	913	183	955	5617	M gal
Aircraft (Point Source)	424	73	1497	1004	219		
Railroad	10	26	28	20	30	799	M gal
Vessels	0	0	0	0	0		
Other							
TOTAL TRANSPORTATION	3169	1841	607706	112846	91720		
MISCELLANEOUS - Area Source							
Agricultural Burning							
Other - Wild Fires & Prescribed Burn	1972	0	5800	464	232	232000	tons
TOTAL MISCELLANEOUS	1972	0	5800	464	232		
GRAND TOTAL							
Area Source	6698	2963	619694	118127	92816		
Point Source	80039	28039	5222	4310	5084		
Total	86737	31002	624916	122437	97900		

5. SUMMARY CHARTS

Region 053



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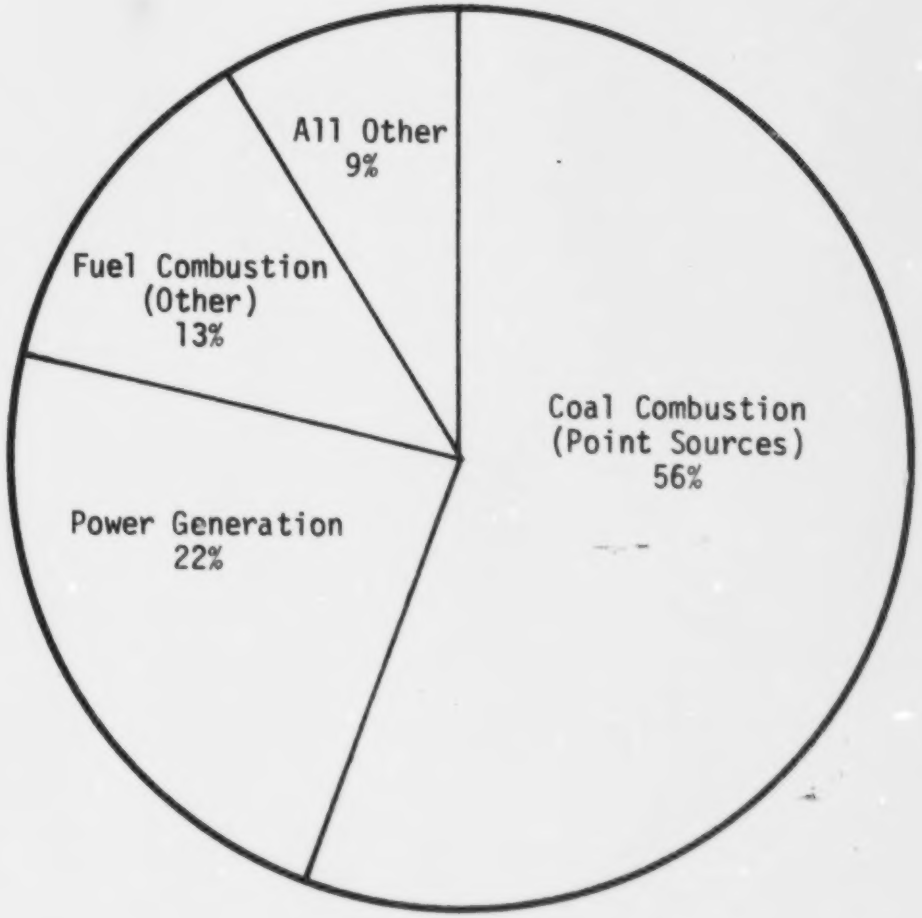
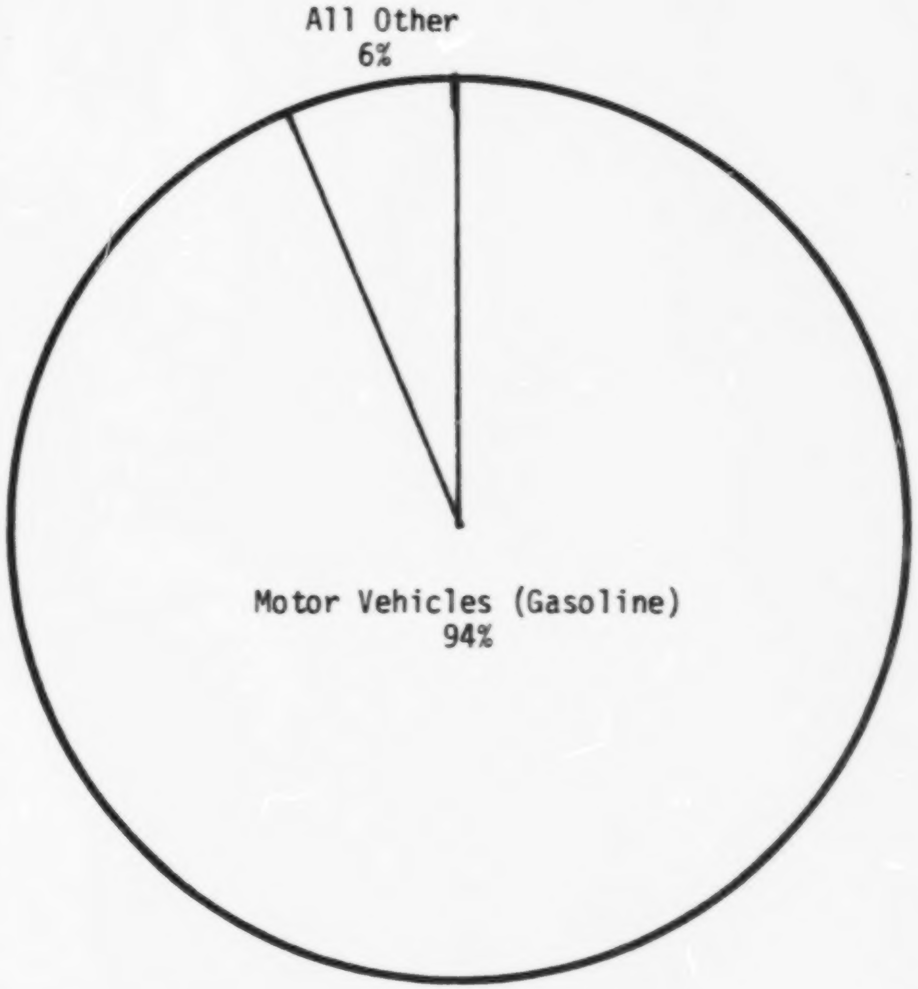
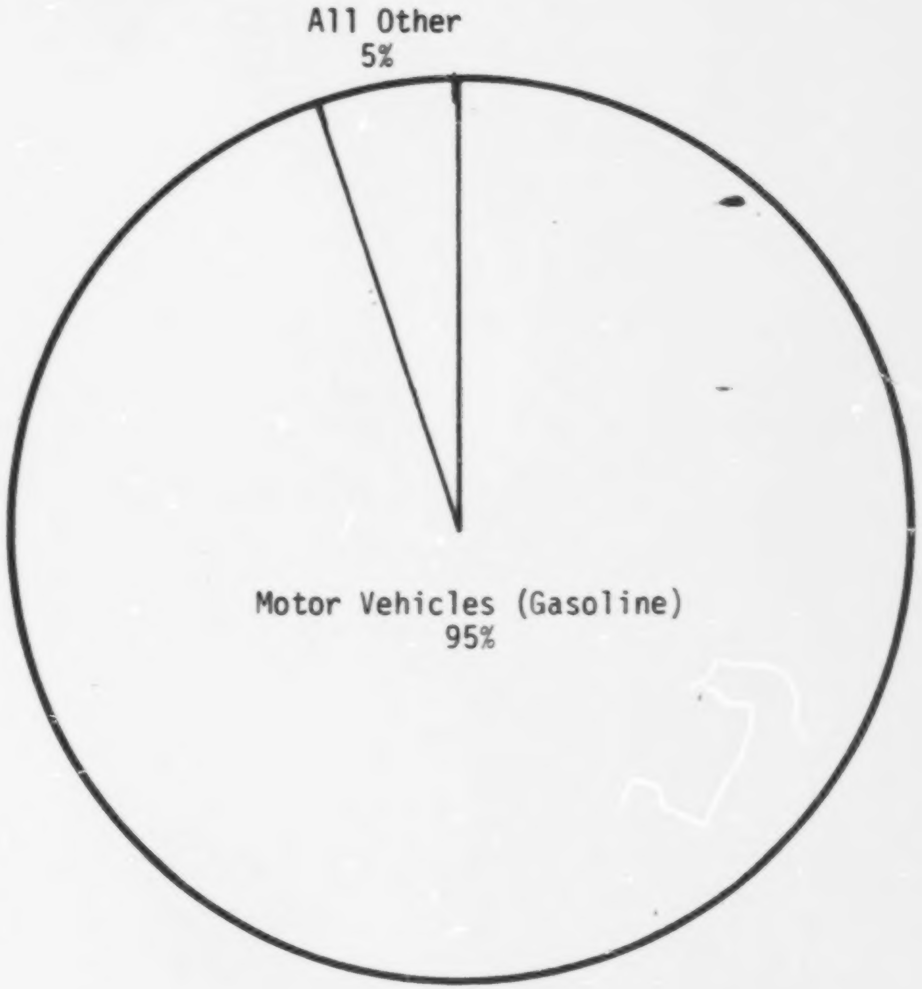


SO_2 Emissions

Region 053

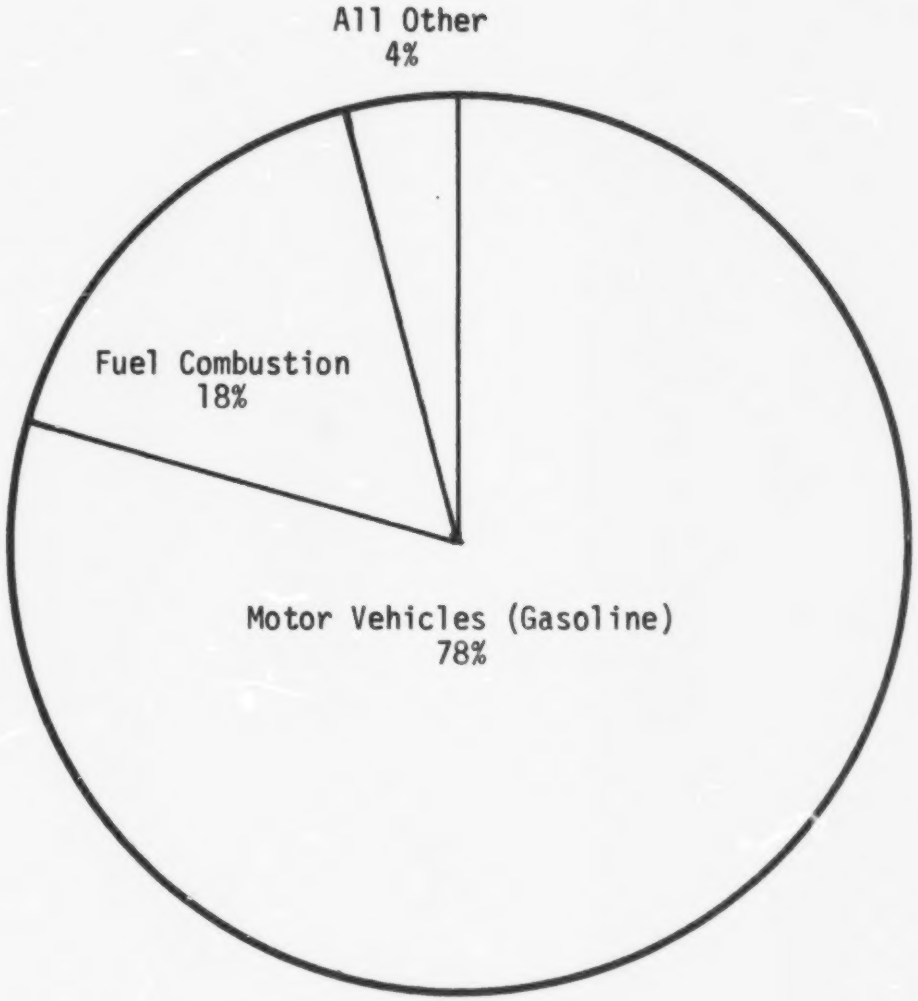


CO Emissions



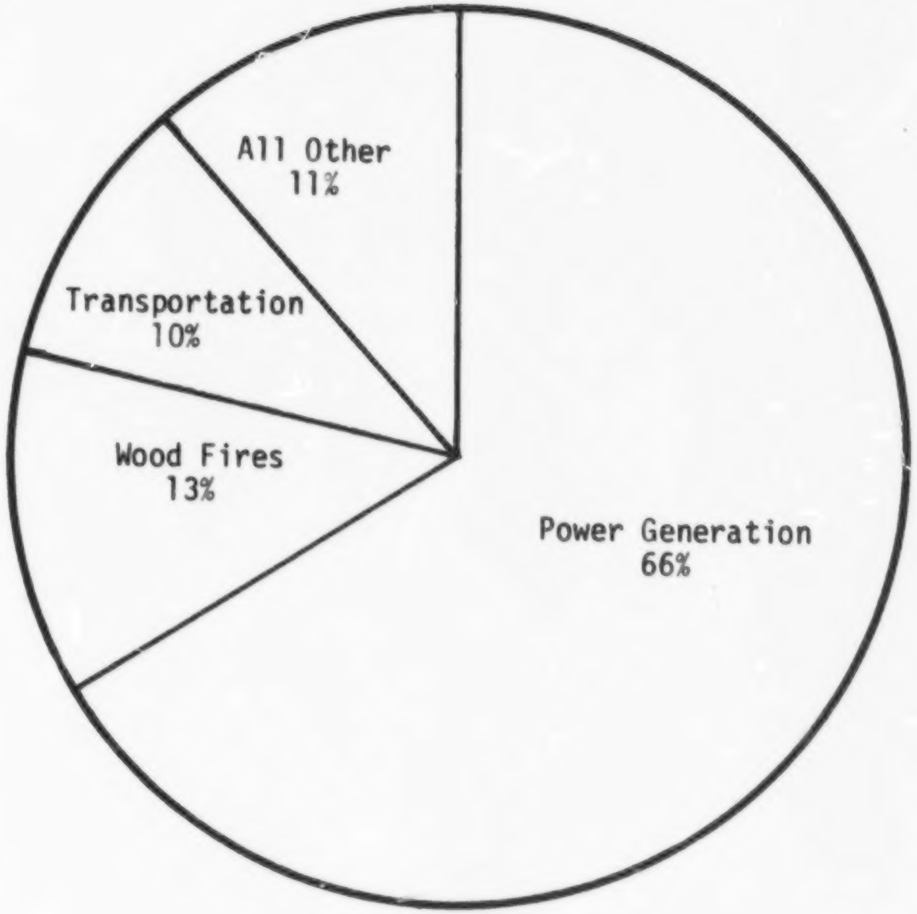
HC Emissions

Region 053



NO_x Emissions

Region 058



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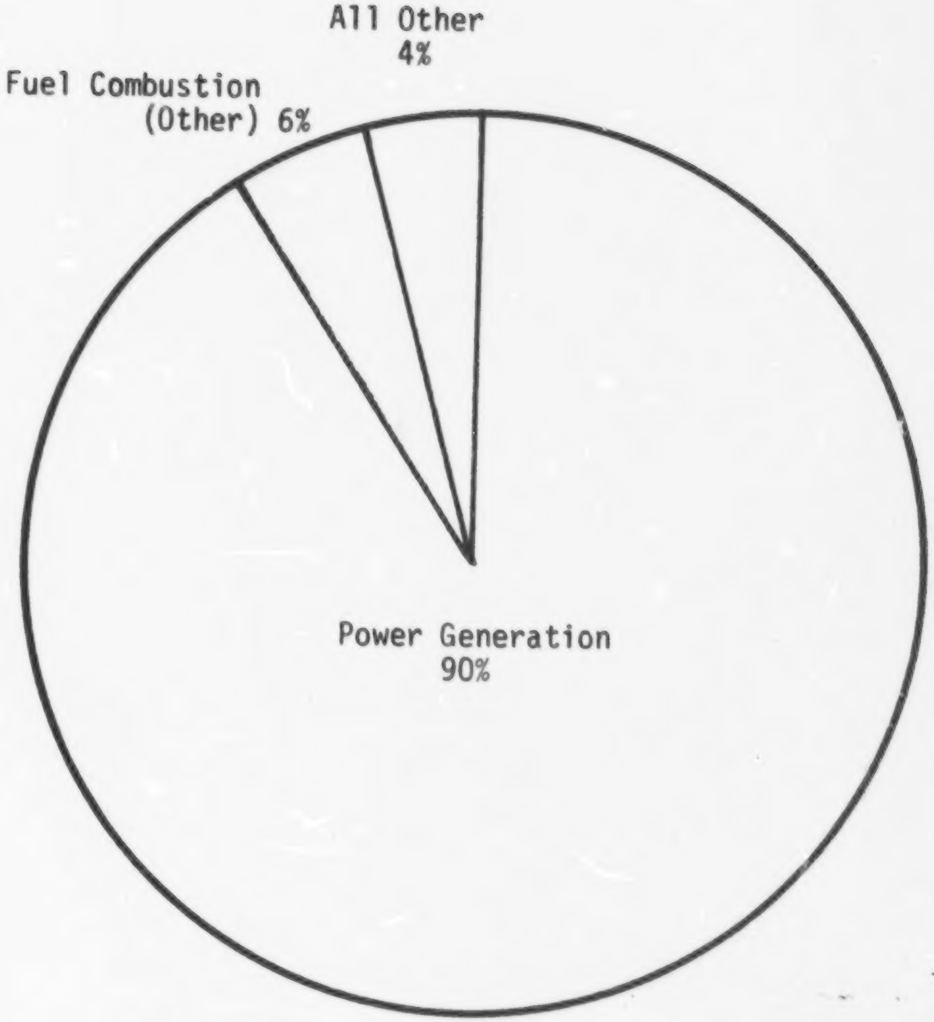

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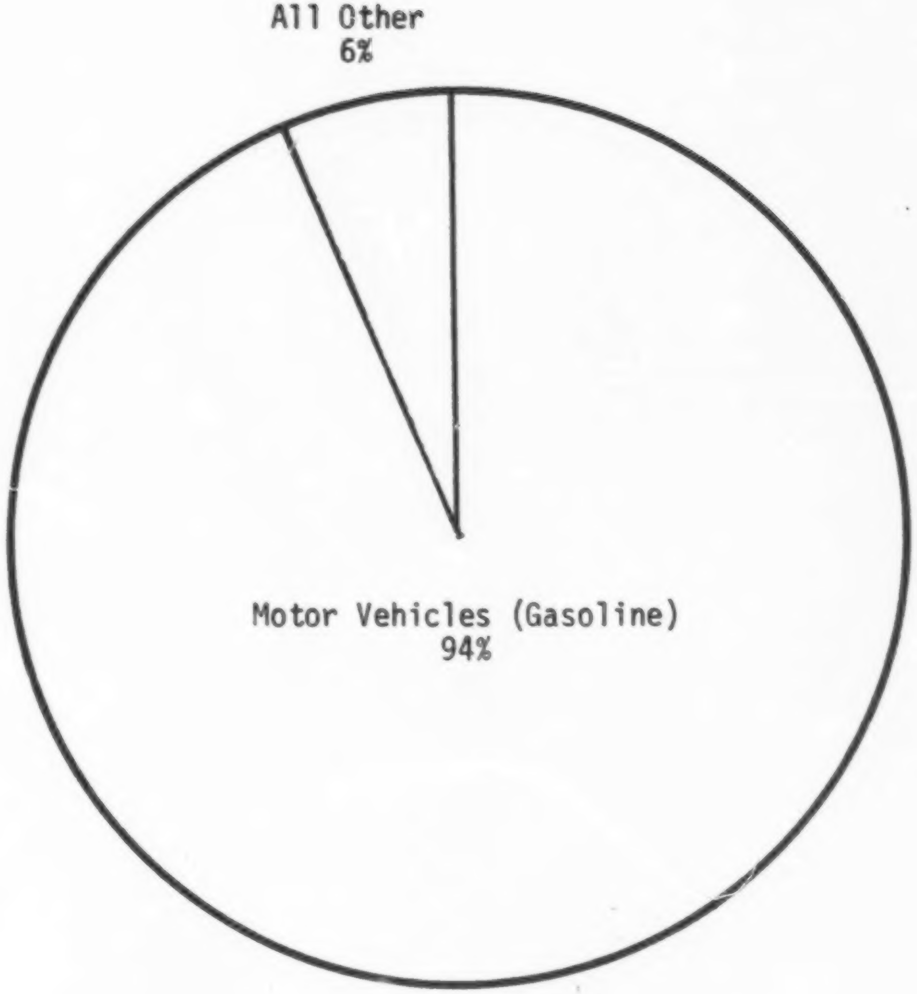
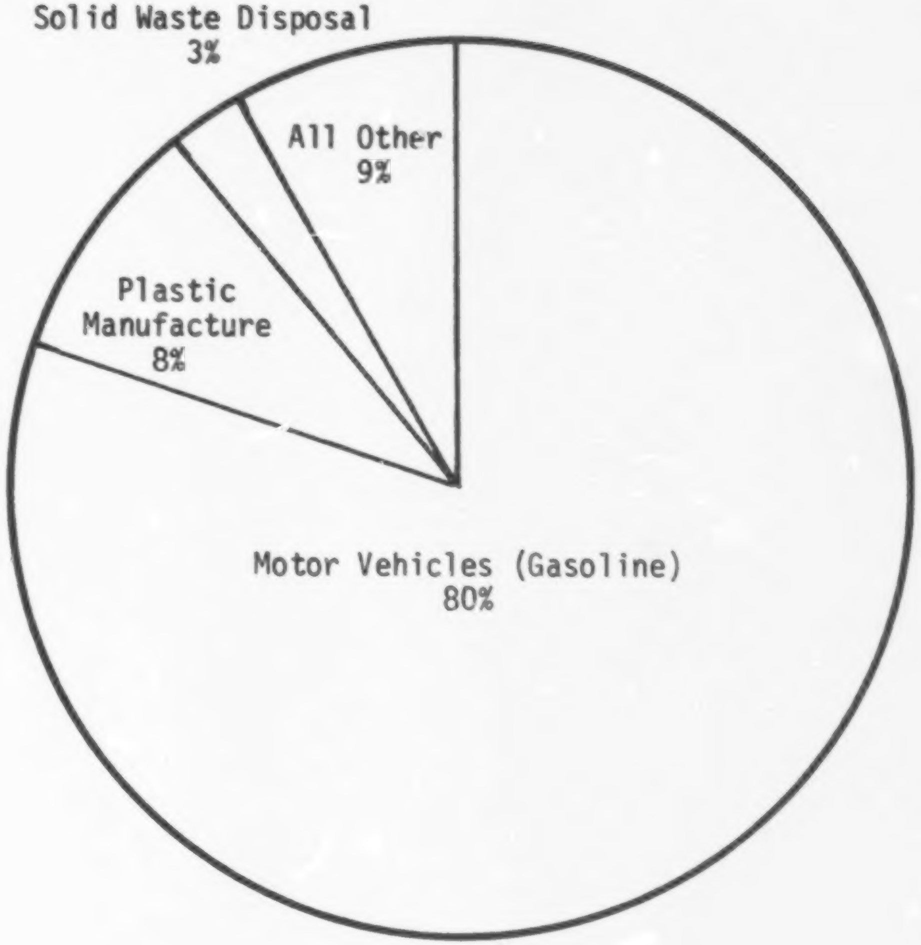
Region 058

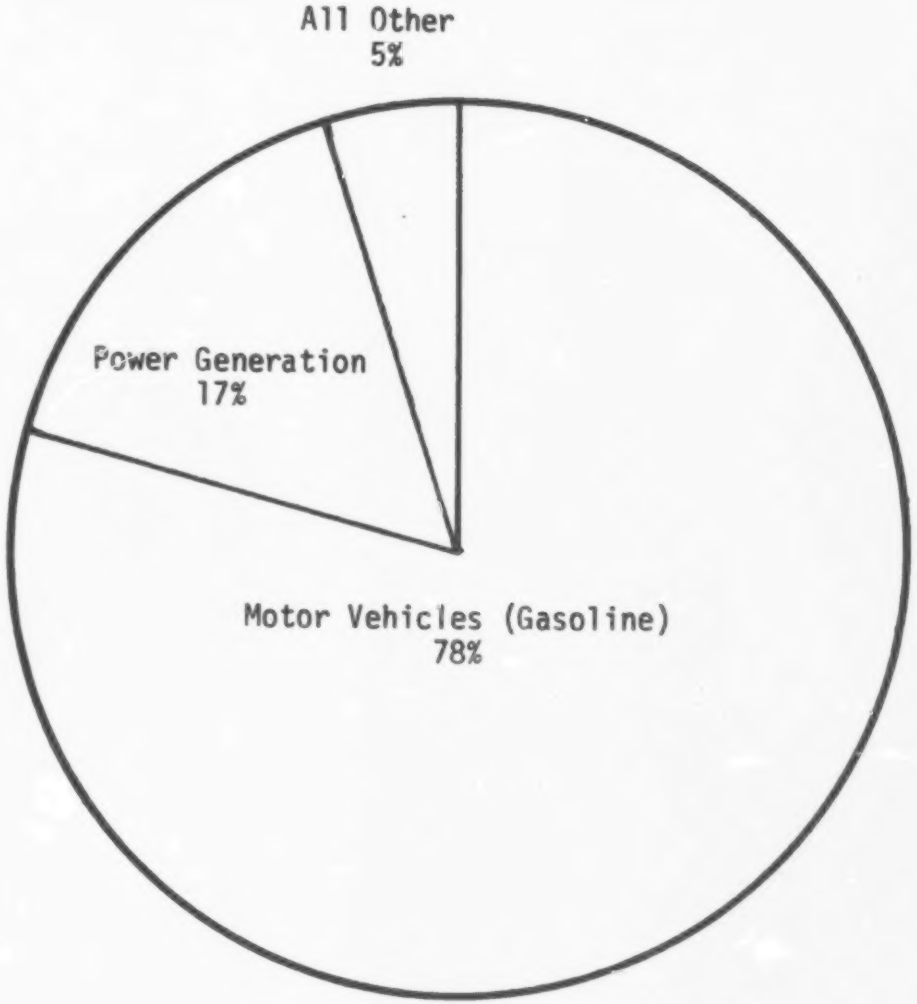


CO Emissions



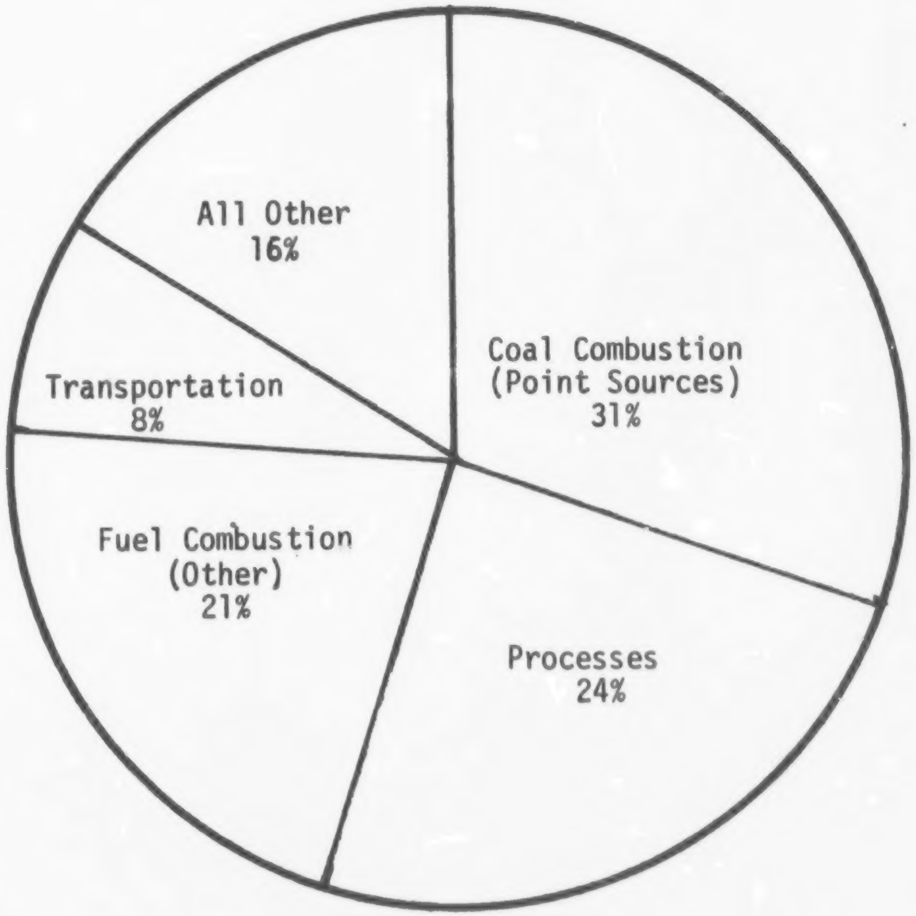
HC Emissions

Region 058



NO_x Emissions

Region - 167



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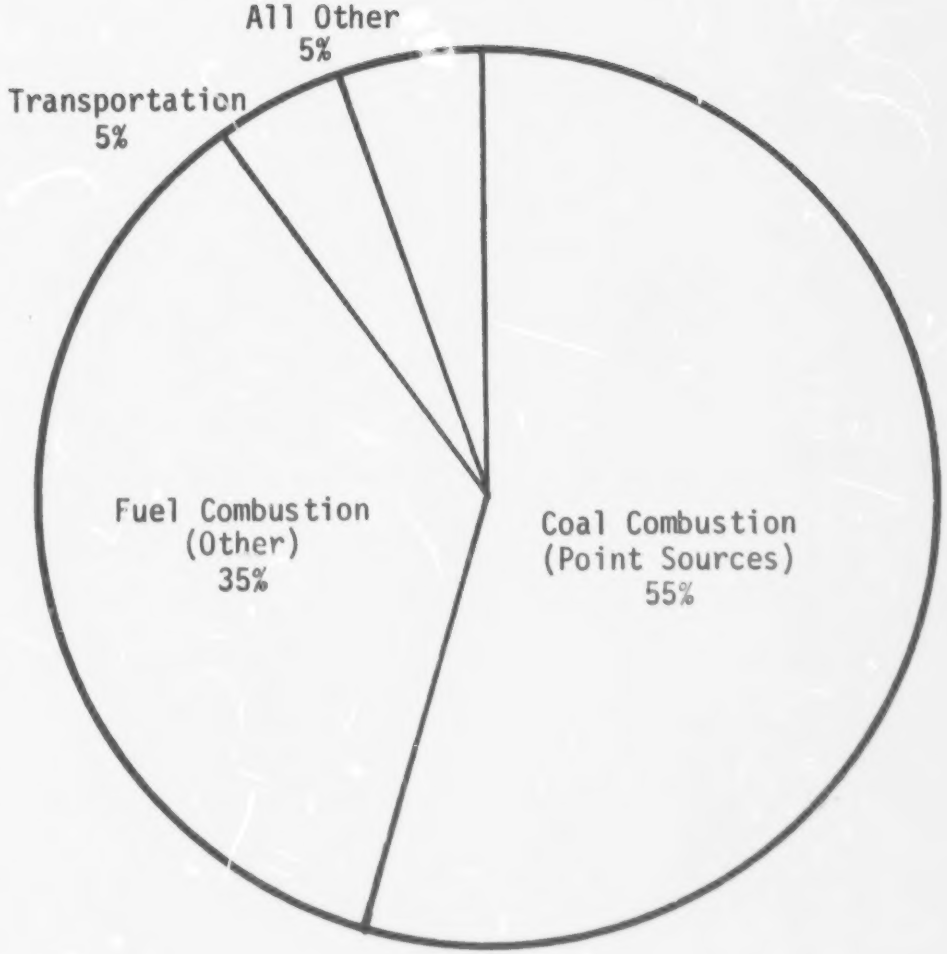
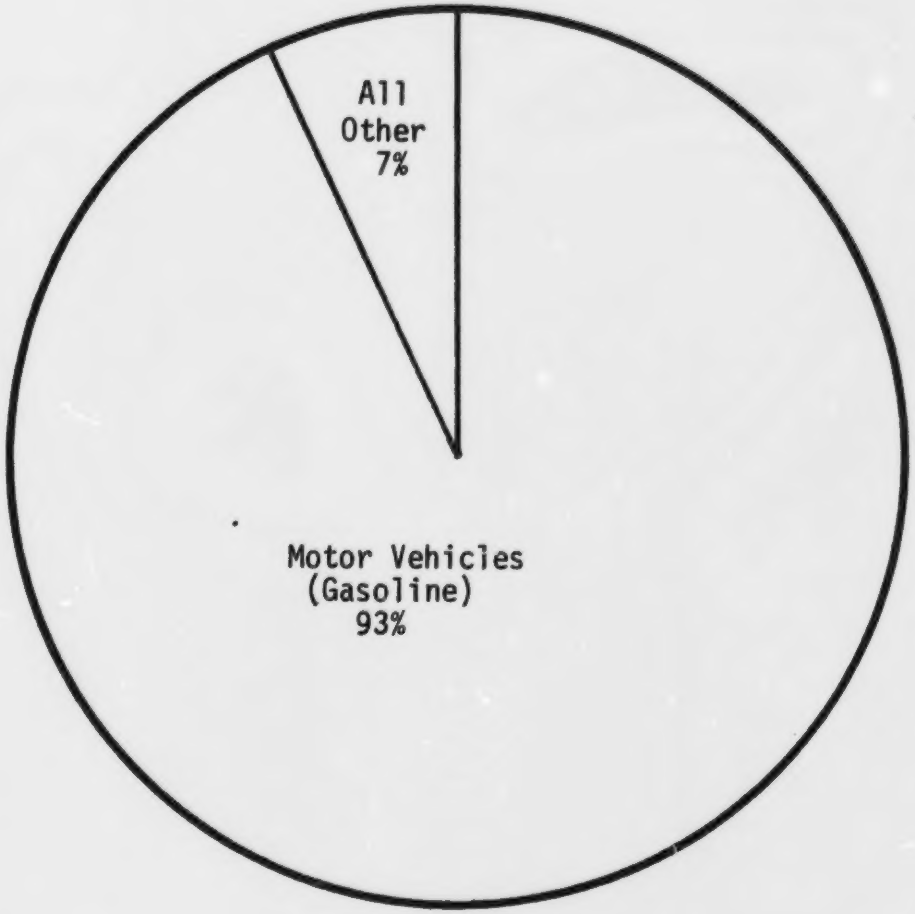
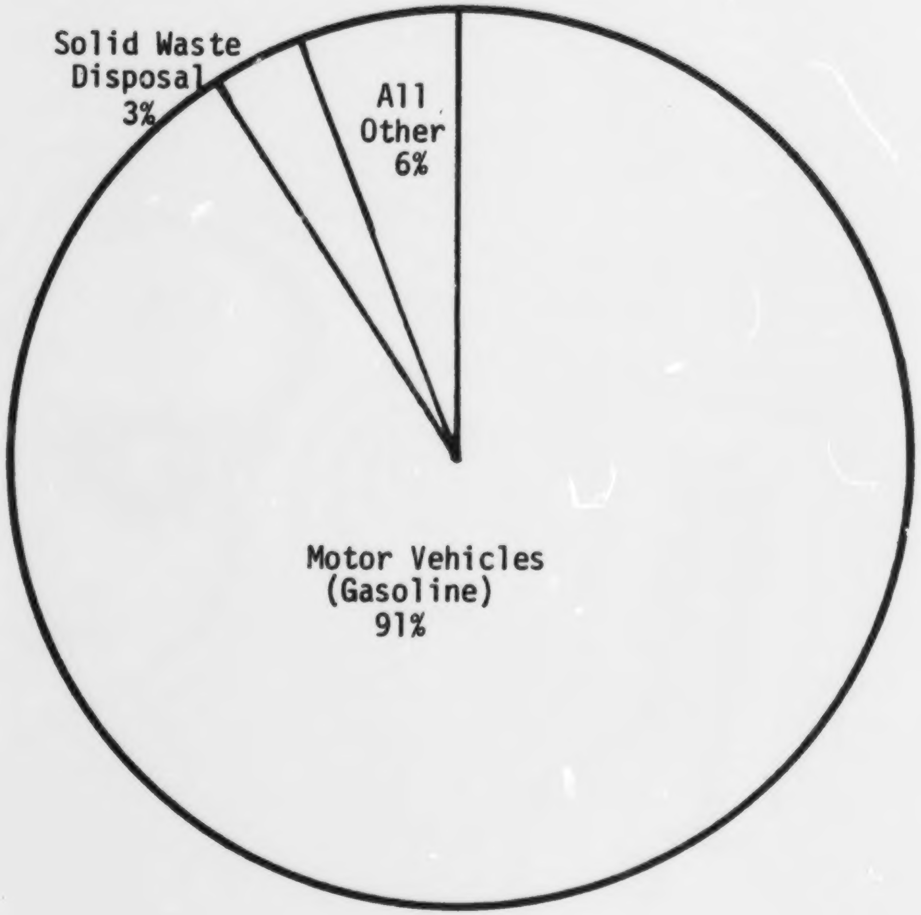


SO_2 Emissions

Region - 167

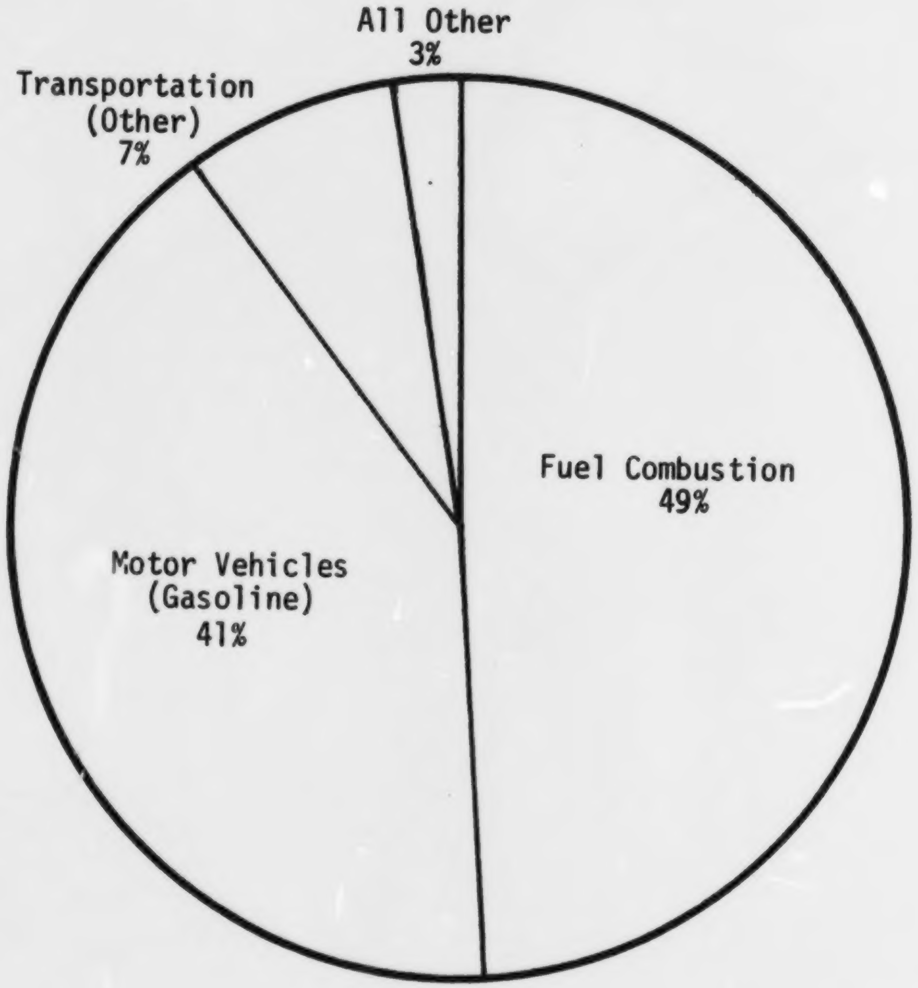


CO Emissions



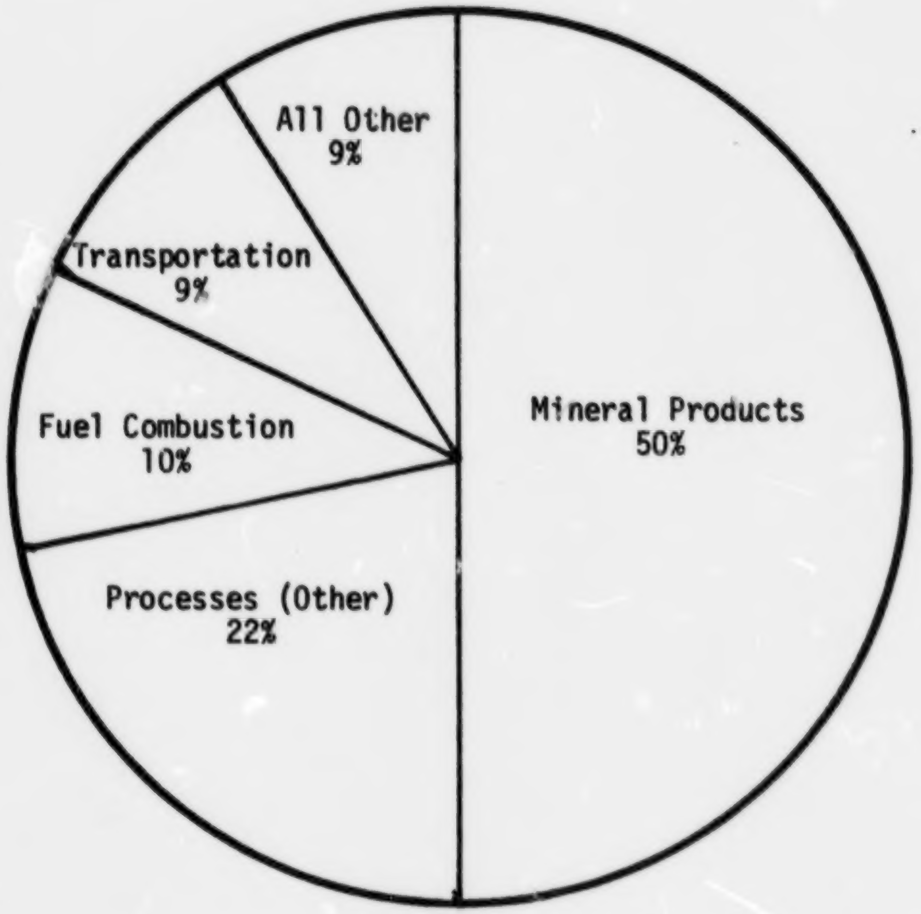
HC Emissions

Region - 167

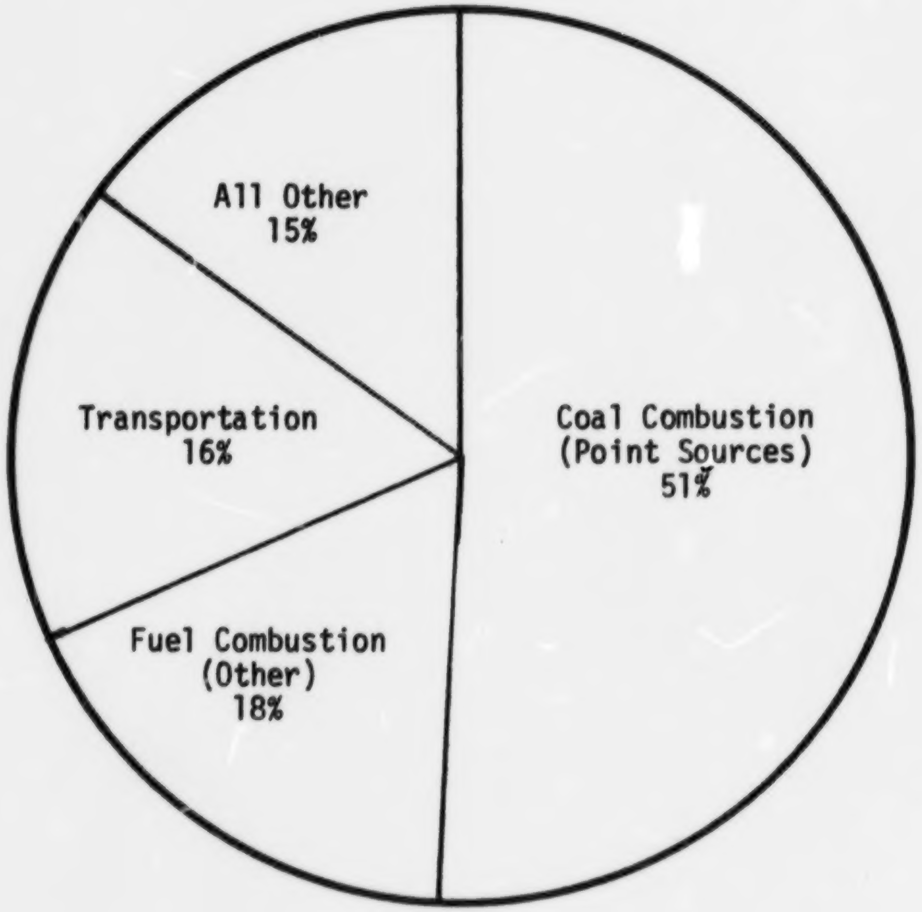


NO_x Emissions

Region 198

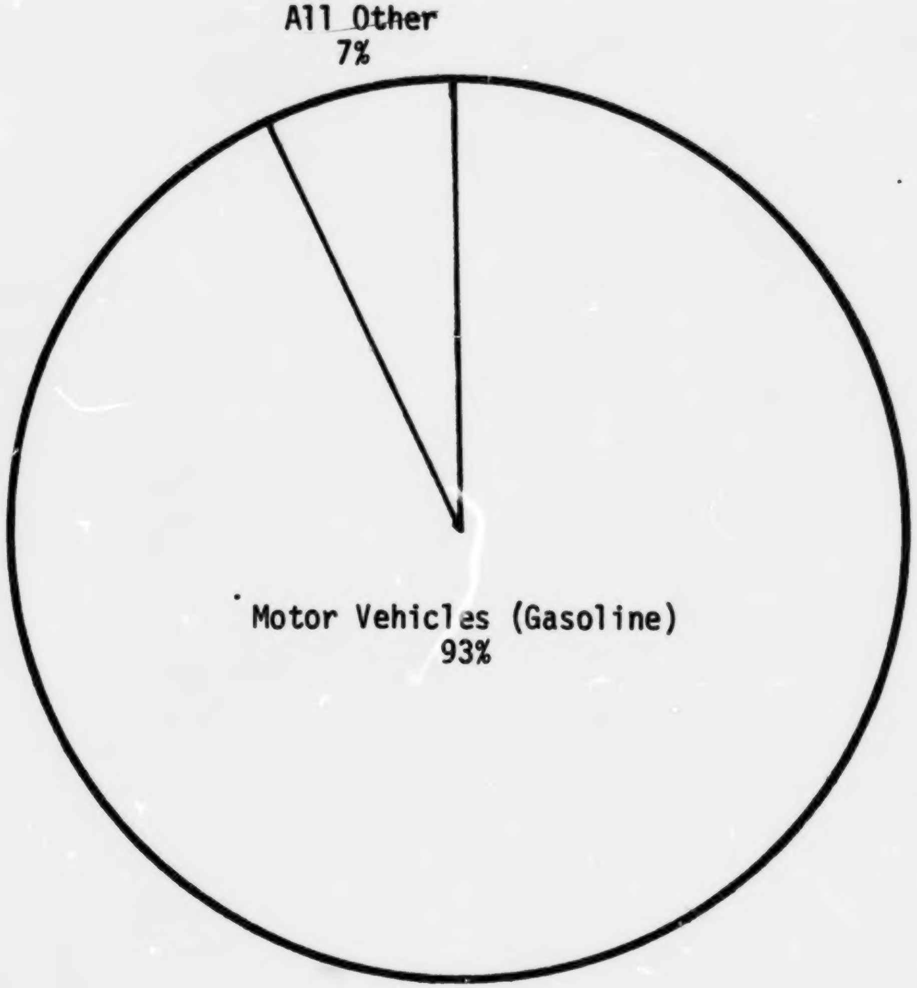


Particulate Emissions

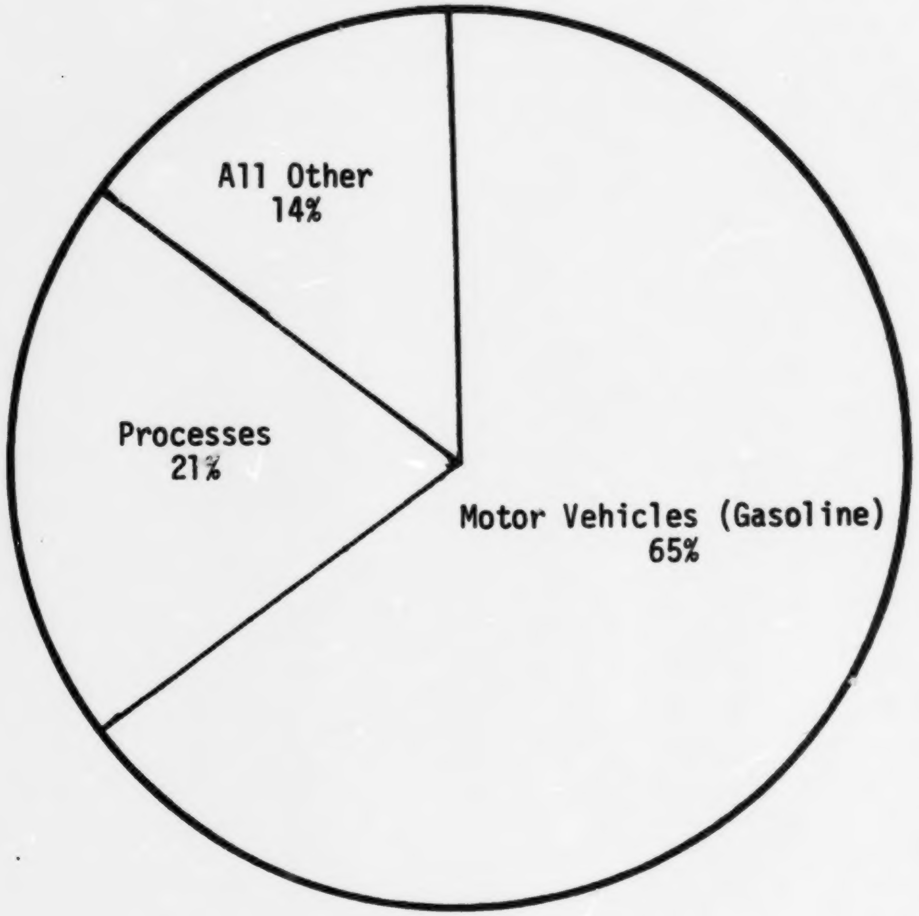


SO_2 Emissions

Region 198

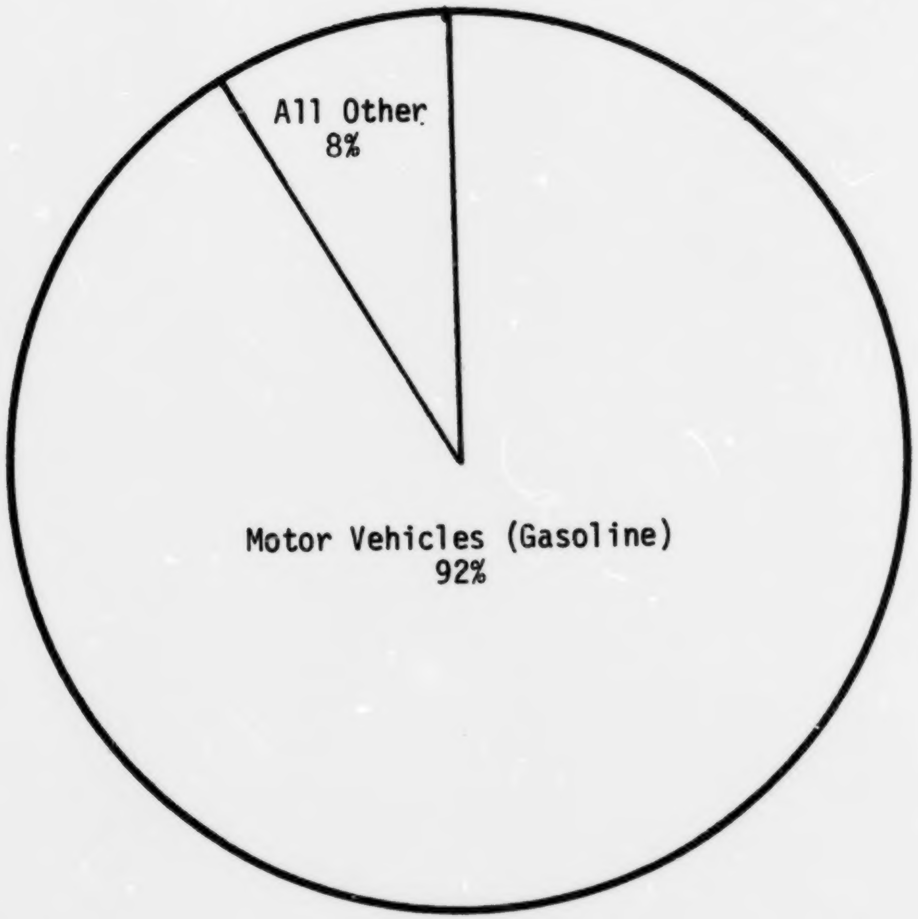


CO Emissions



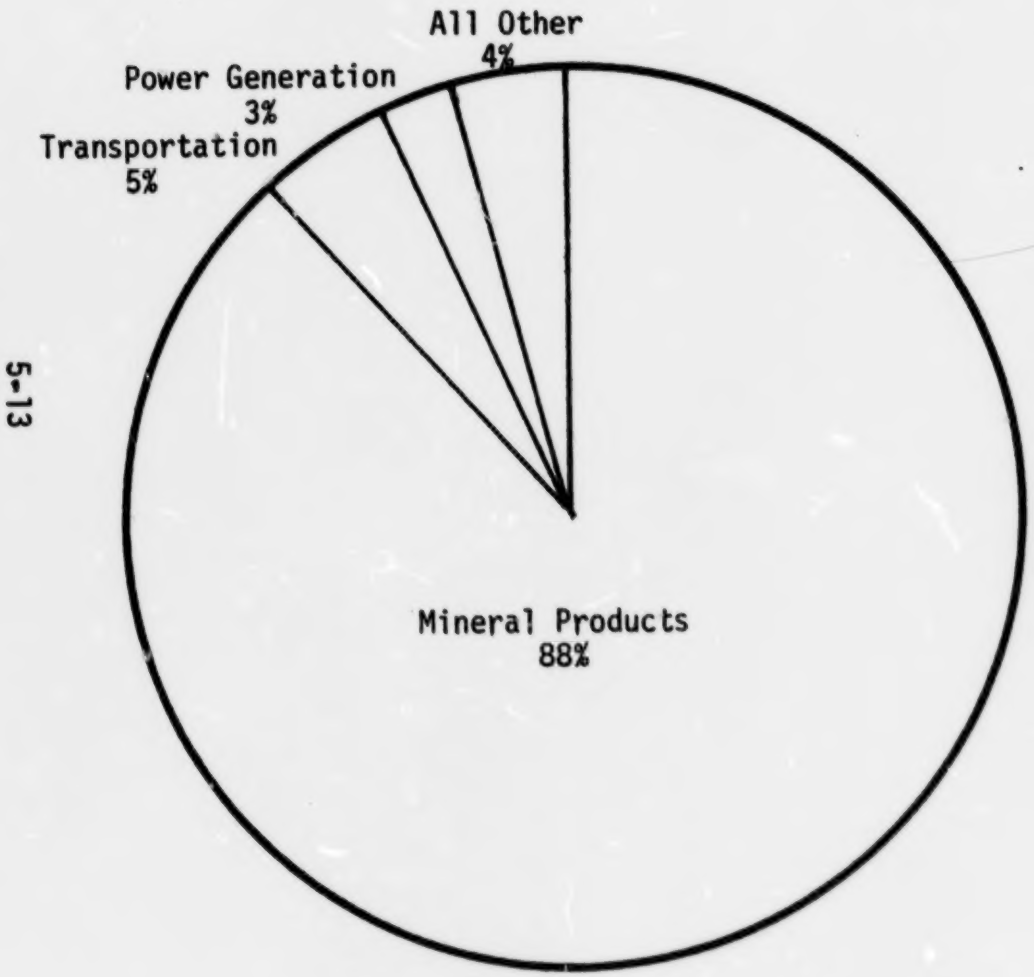
HC Emissions

Region 198

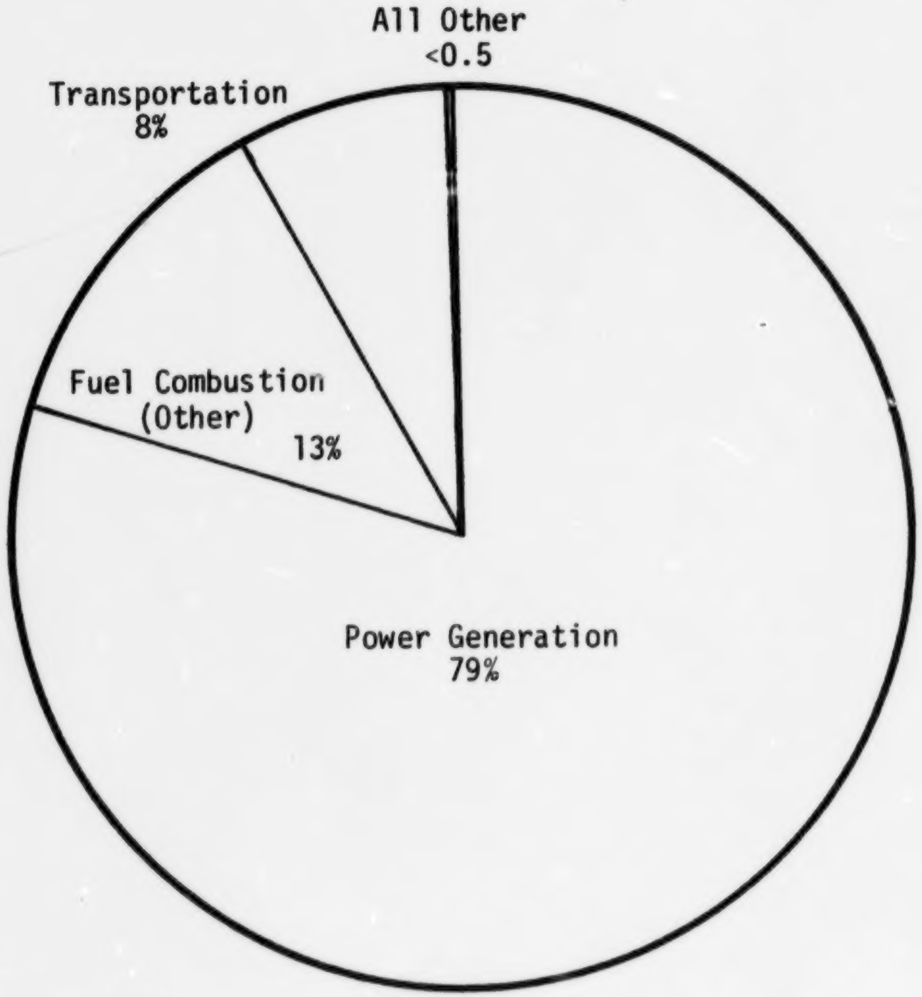


NO_x Emissions

Region 199

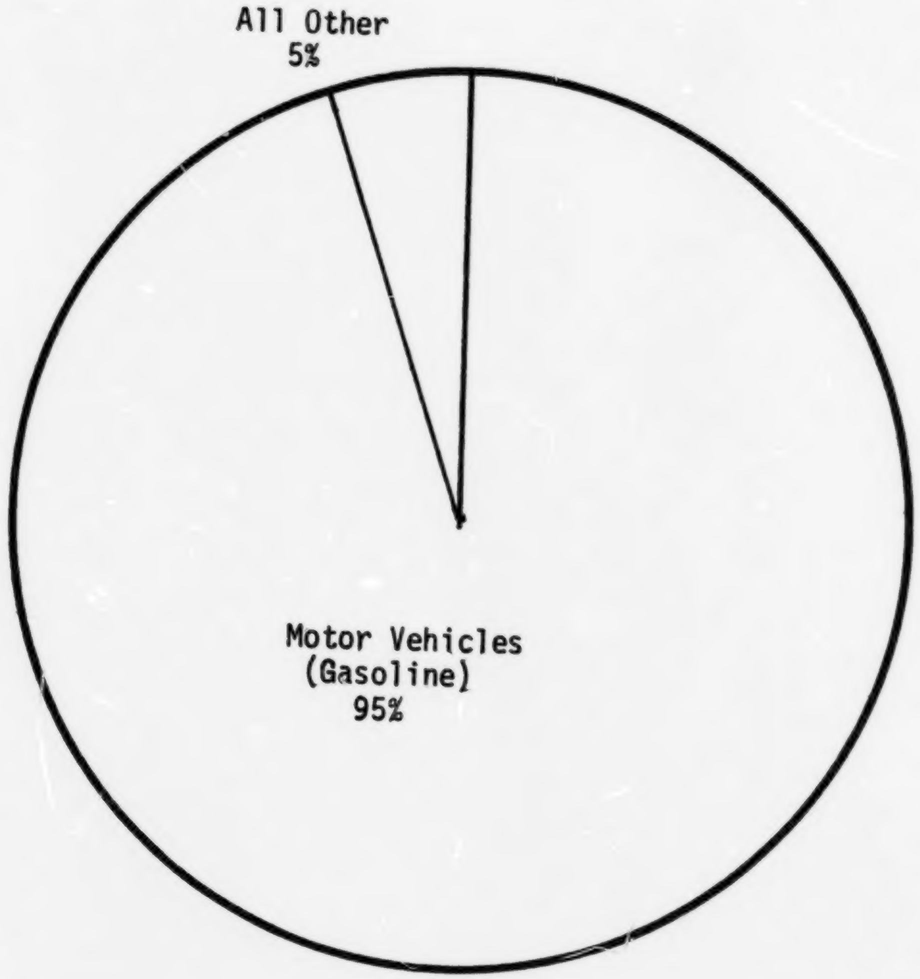


Particulate Emissions

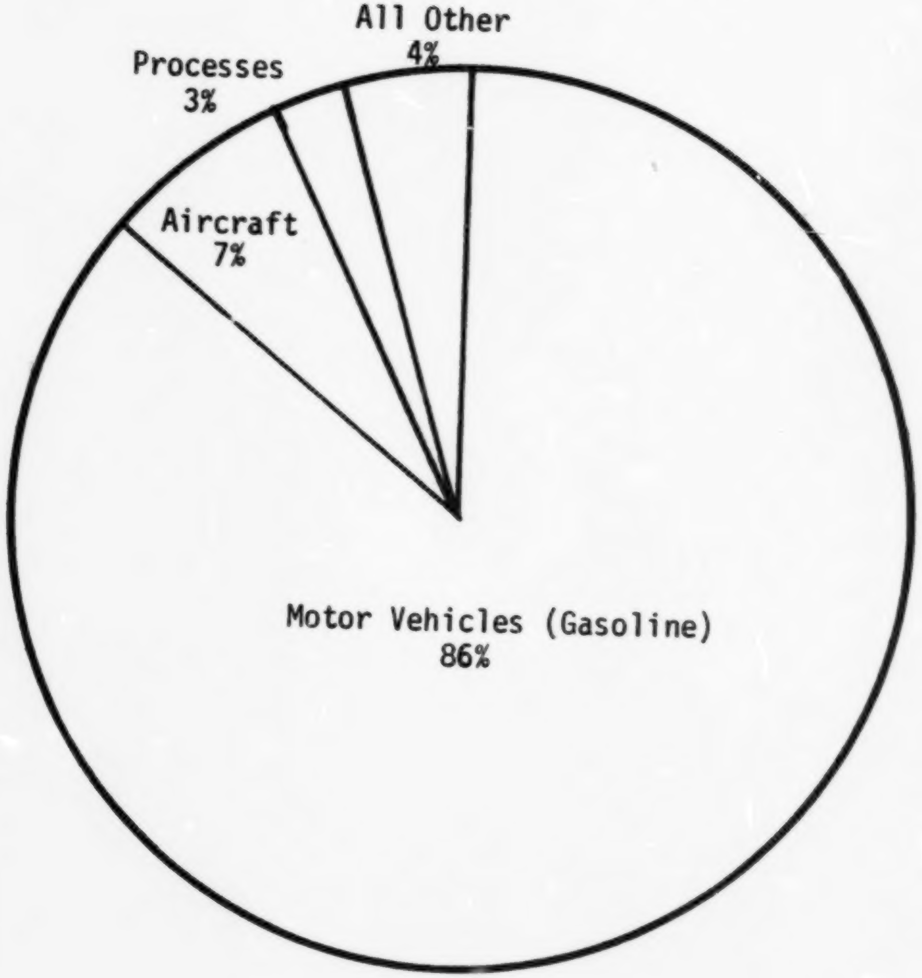


SO_2 Emissions

Region 199

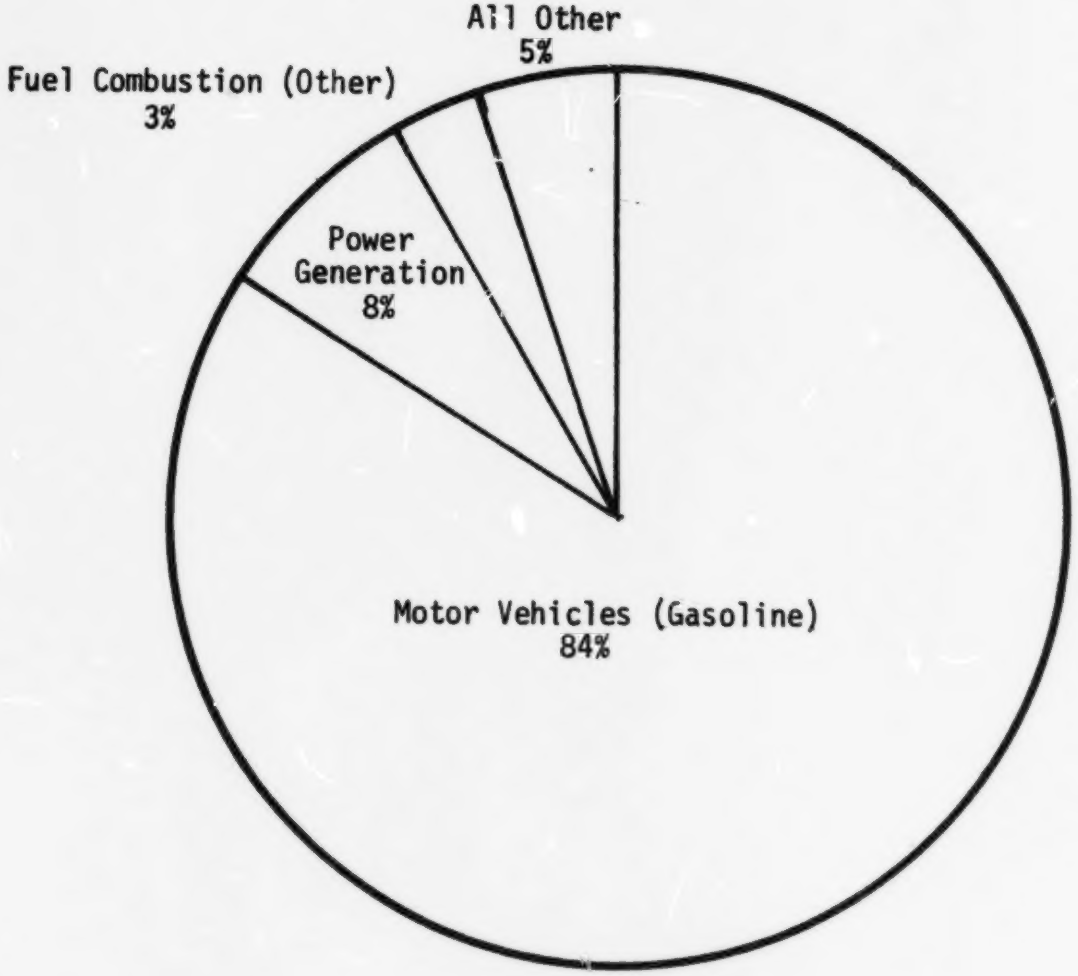


CO Emissions



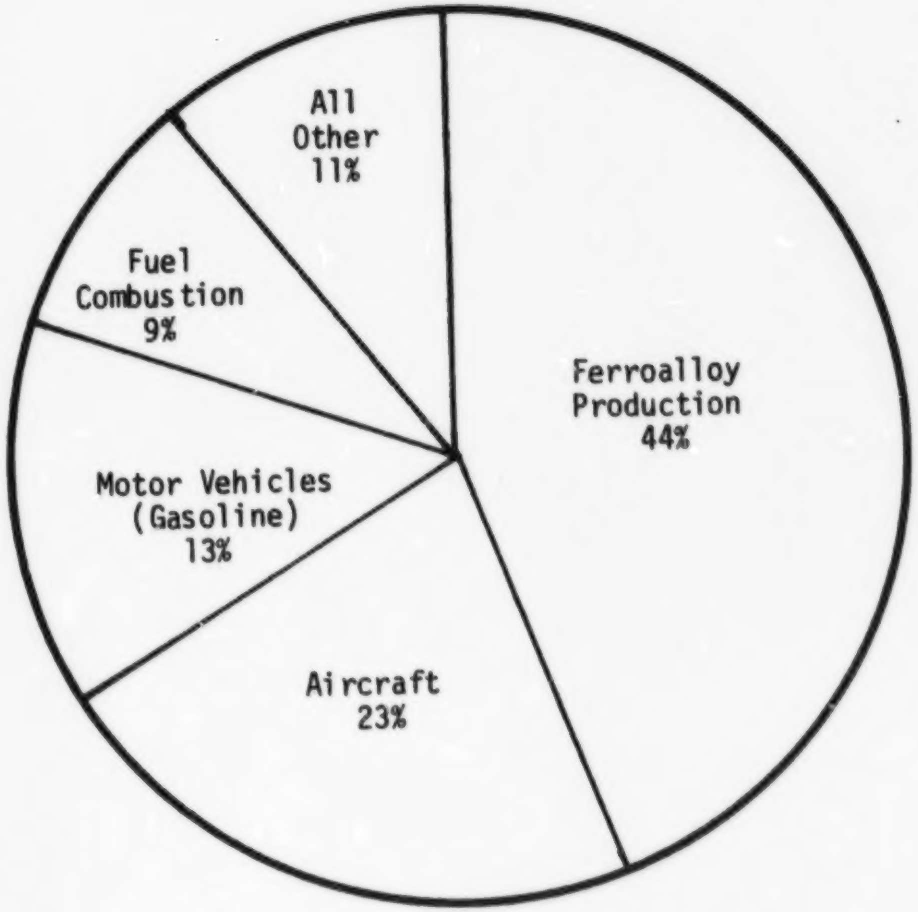
HC Emissions

Region 199



NO_x Emissions

Region - Charleston County



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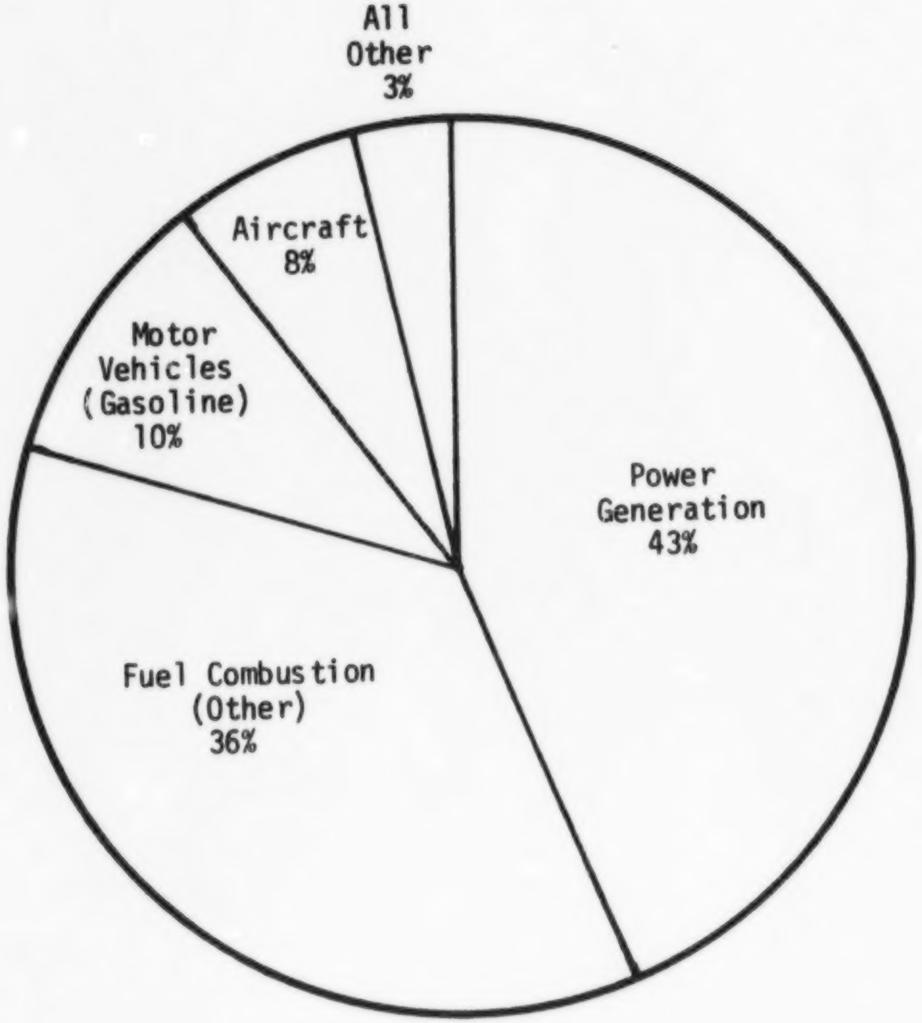
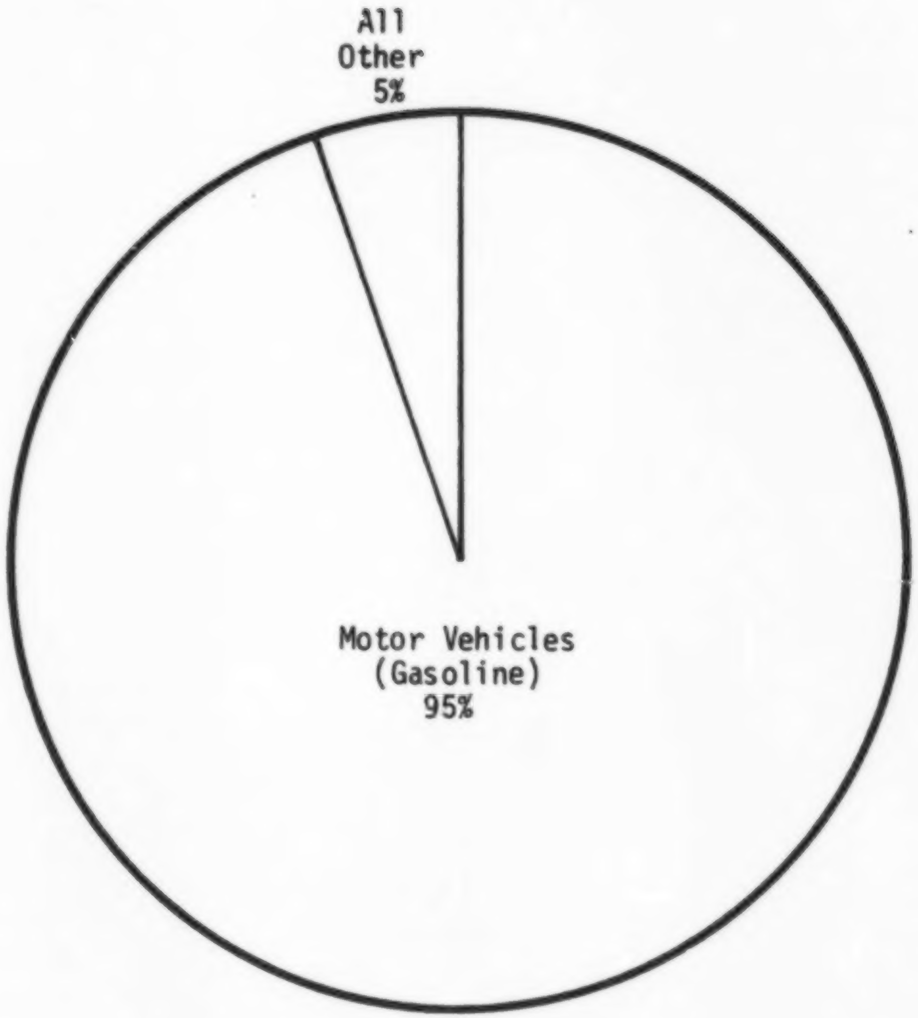
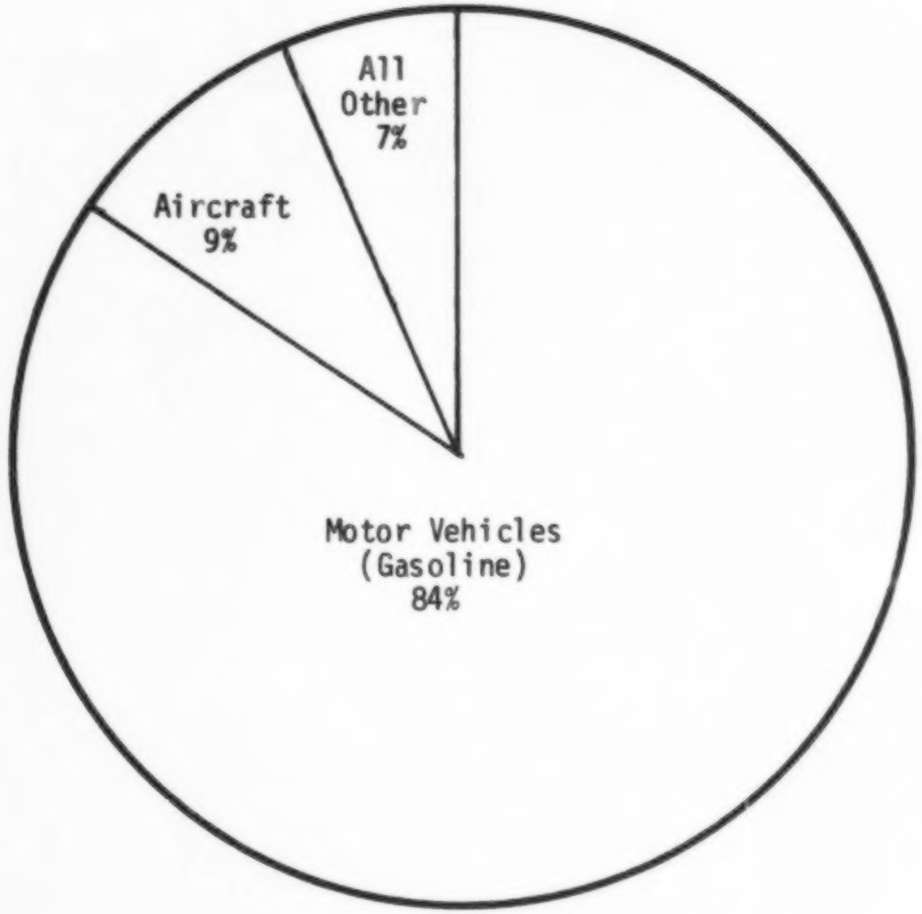


SO_2 Emissions

Region - Charleston County

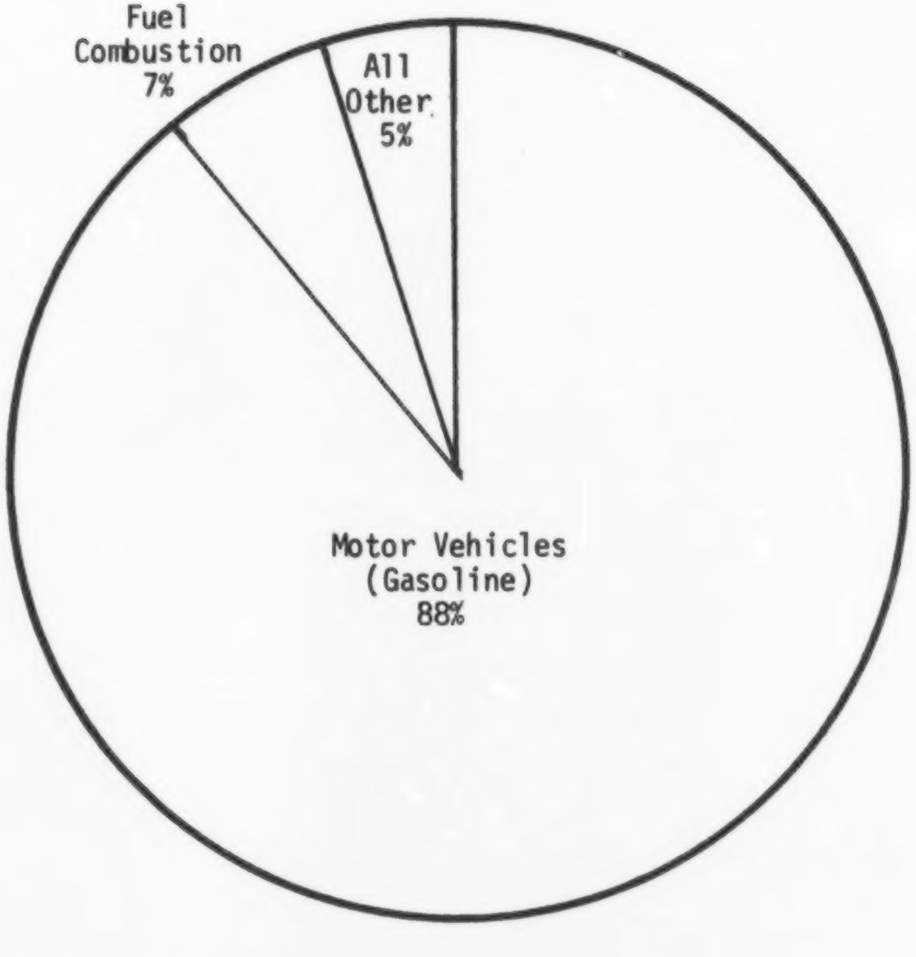


CO Emissions



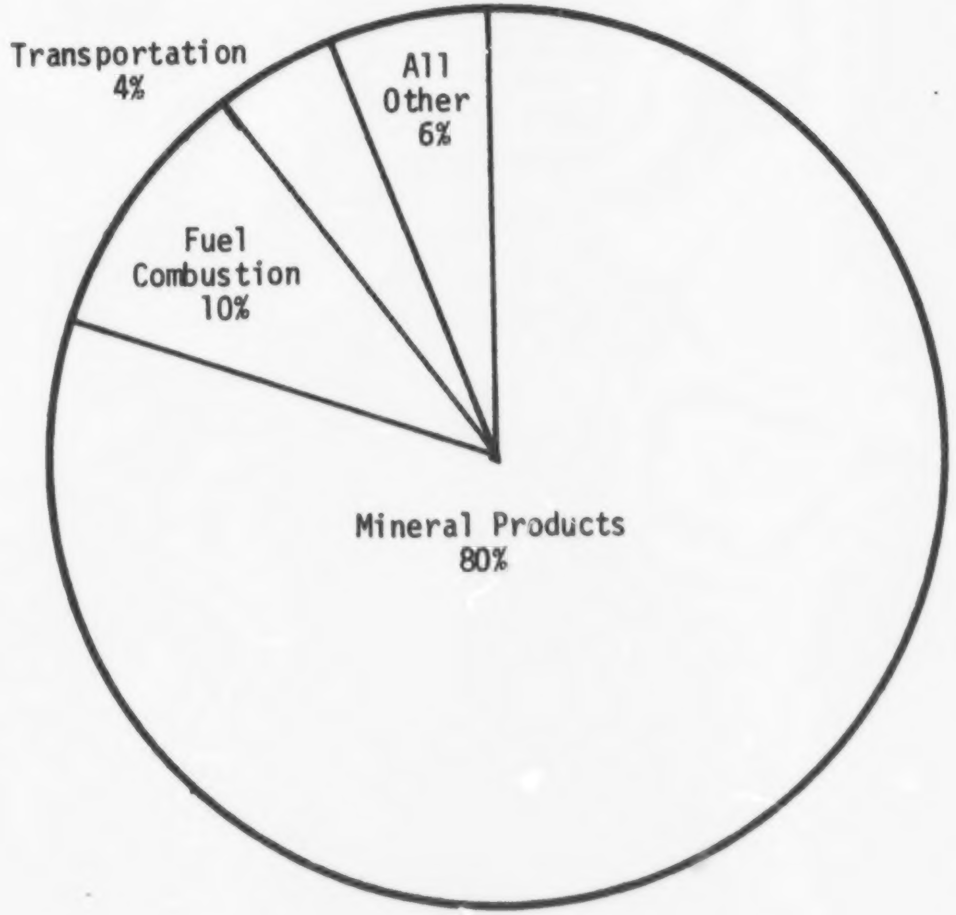
HC Emissions

Region - Charleston County

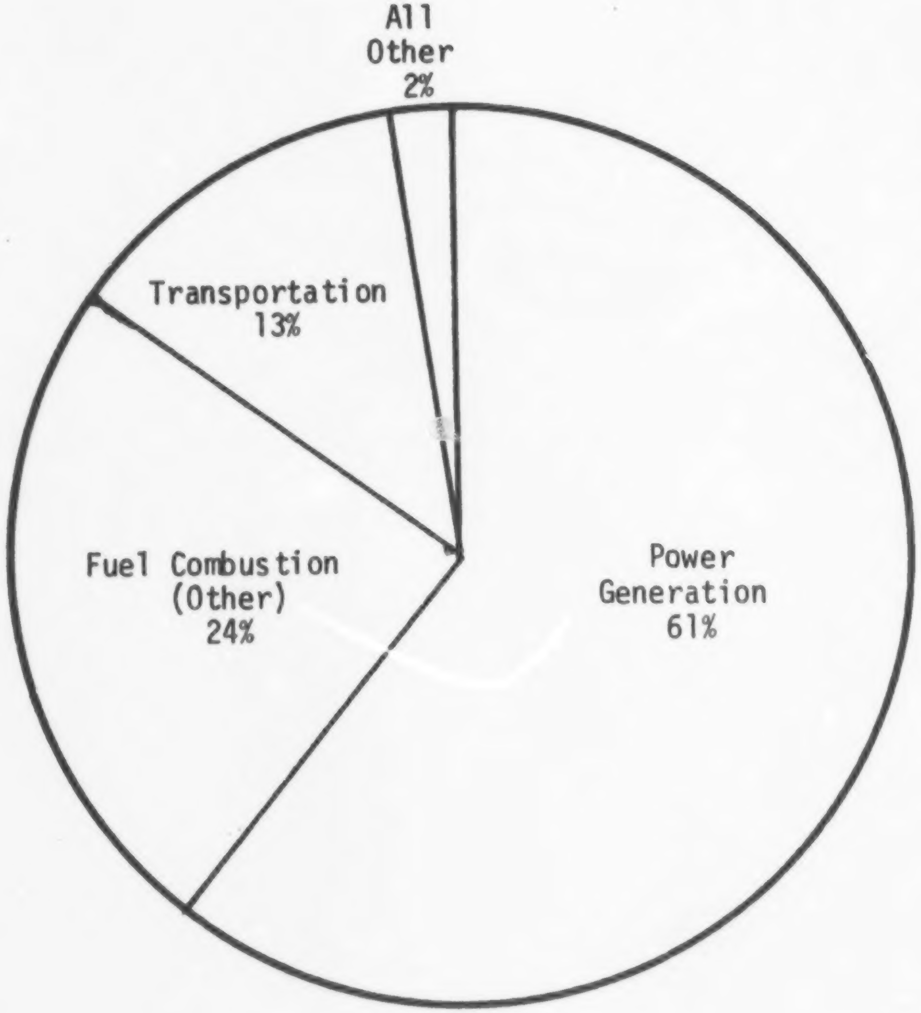


NO_x Emissions

Region 200

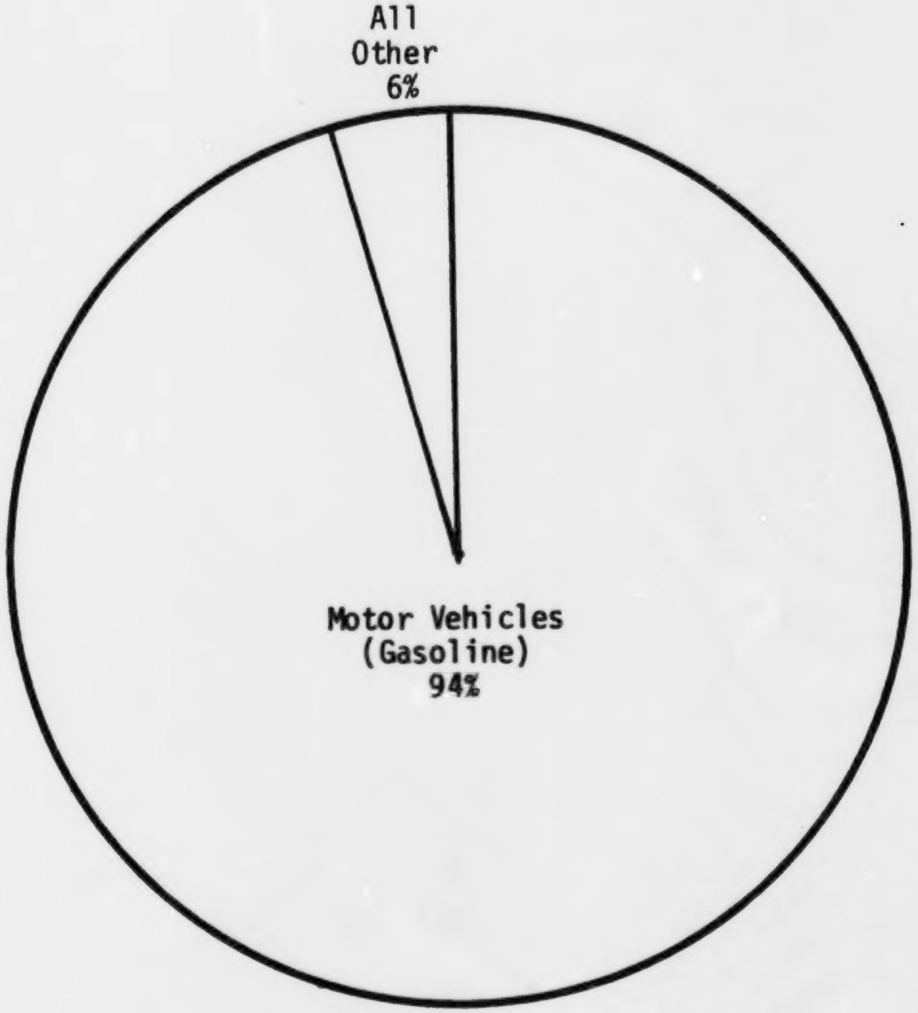


Particulate Emissions



SO_2 Emissions

Region 200



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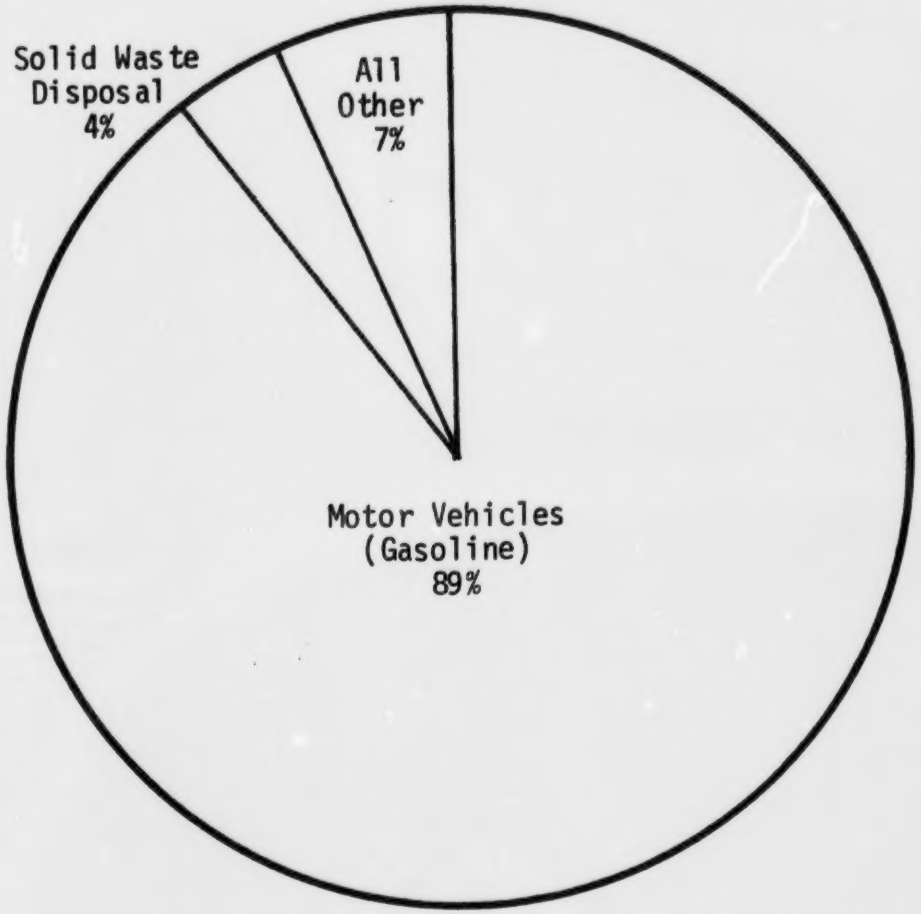
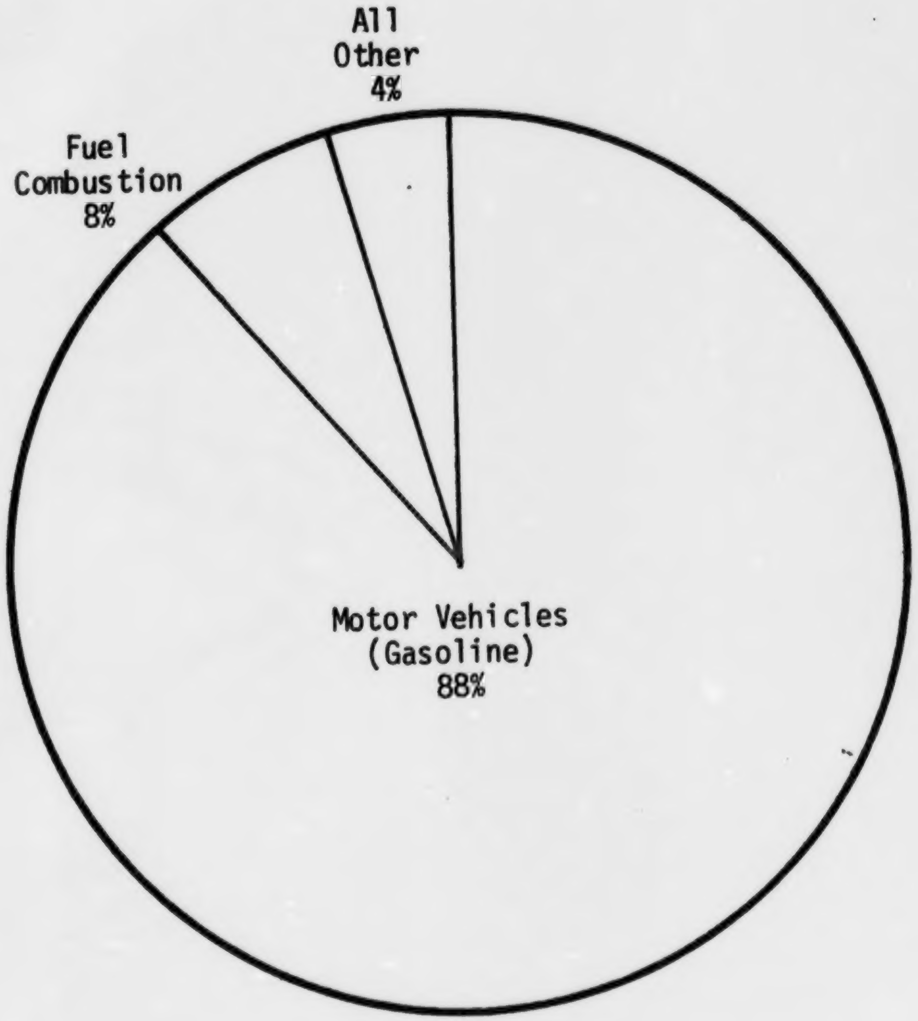


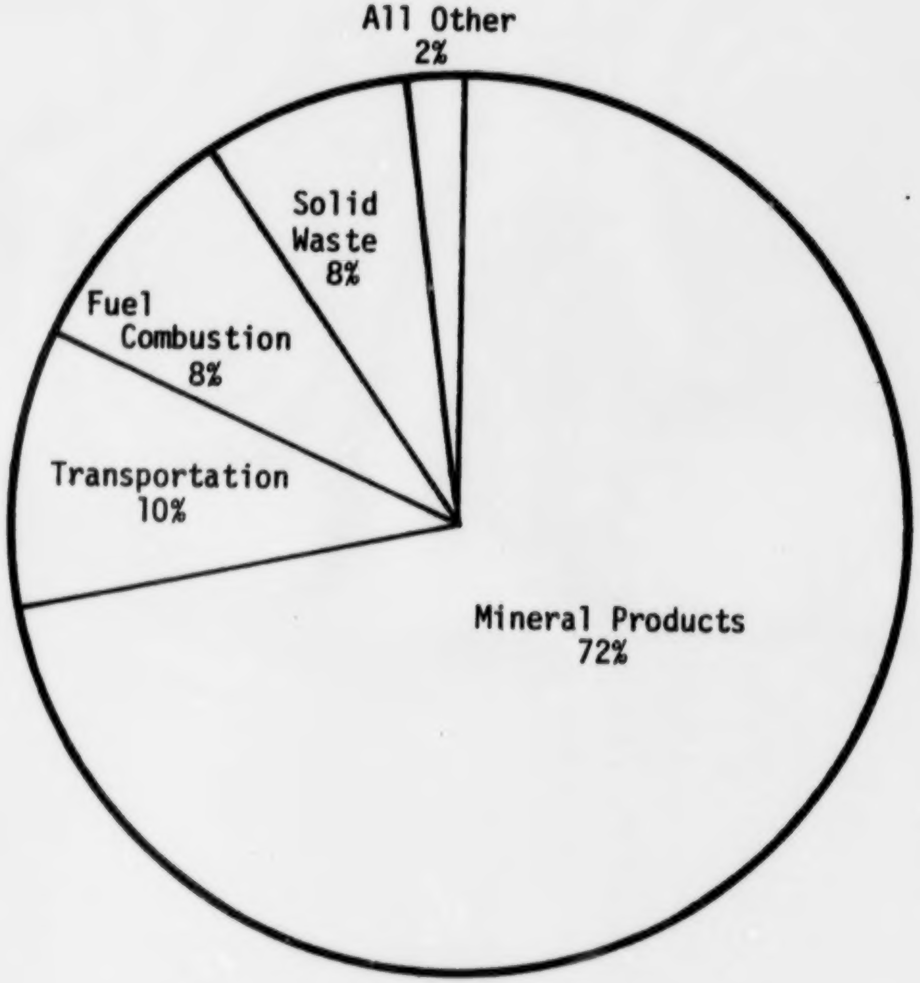
HC Emissions

Region 200



NO_x Emissions

Richland-Lexington Counties



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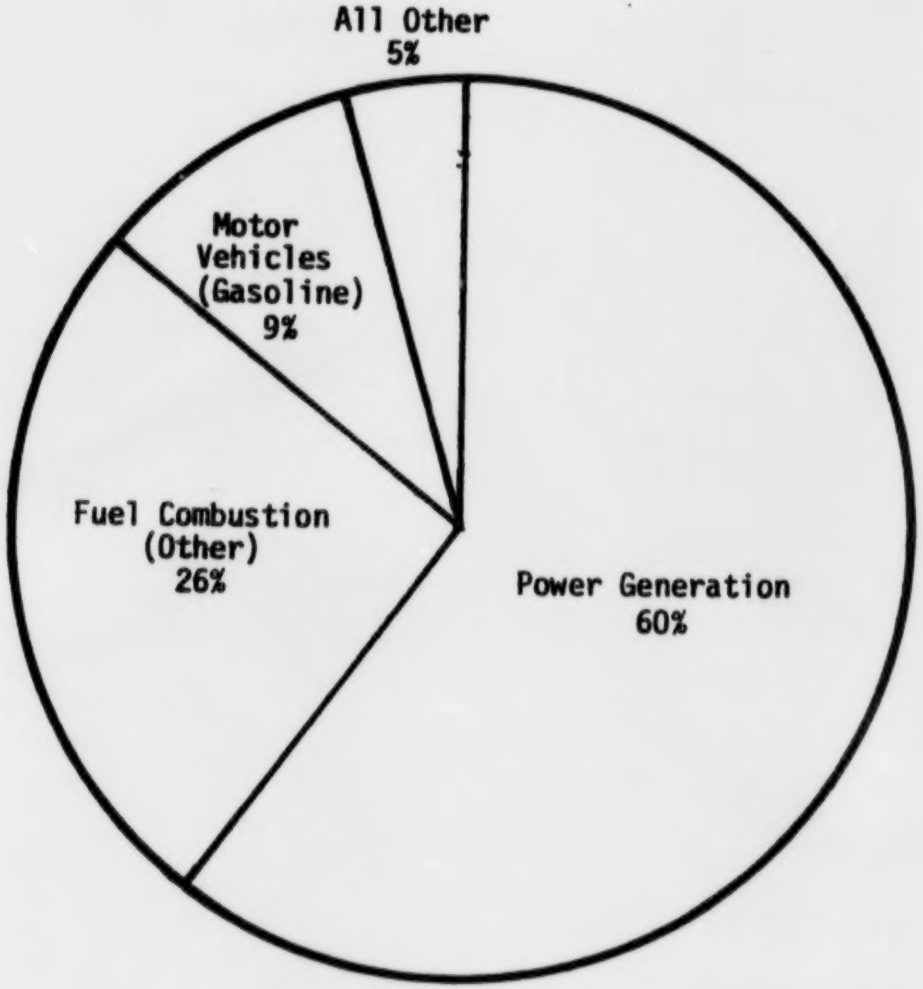
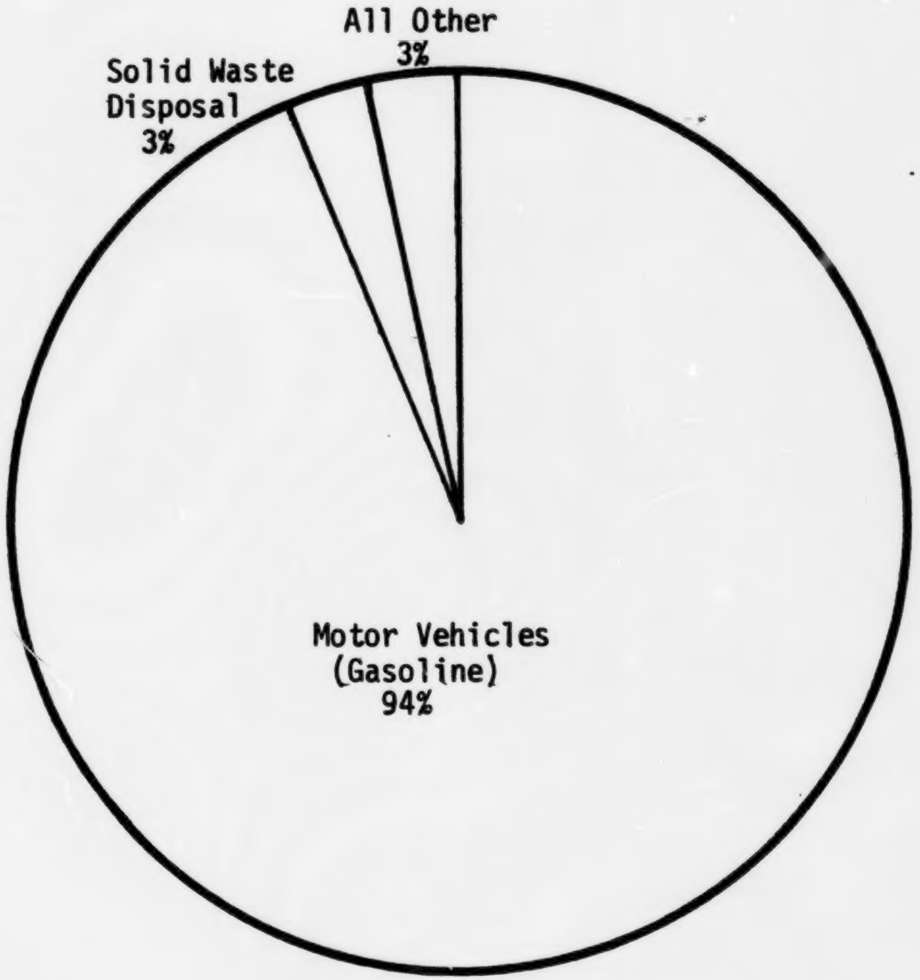
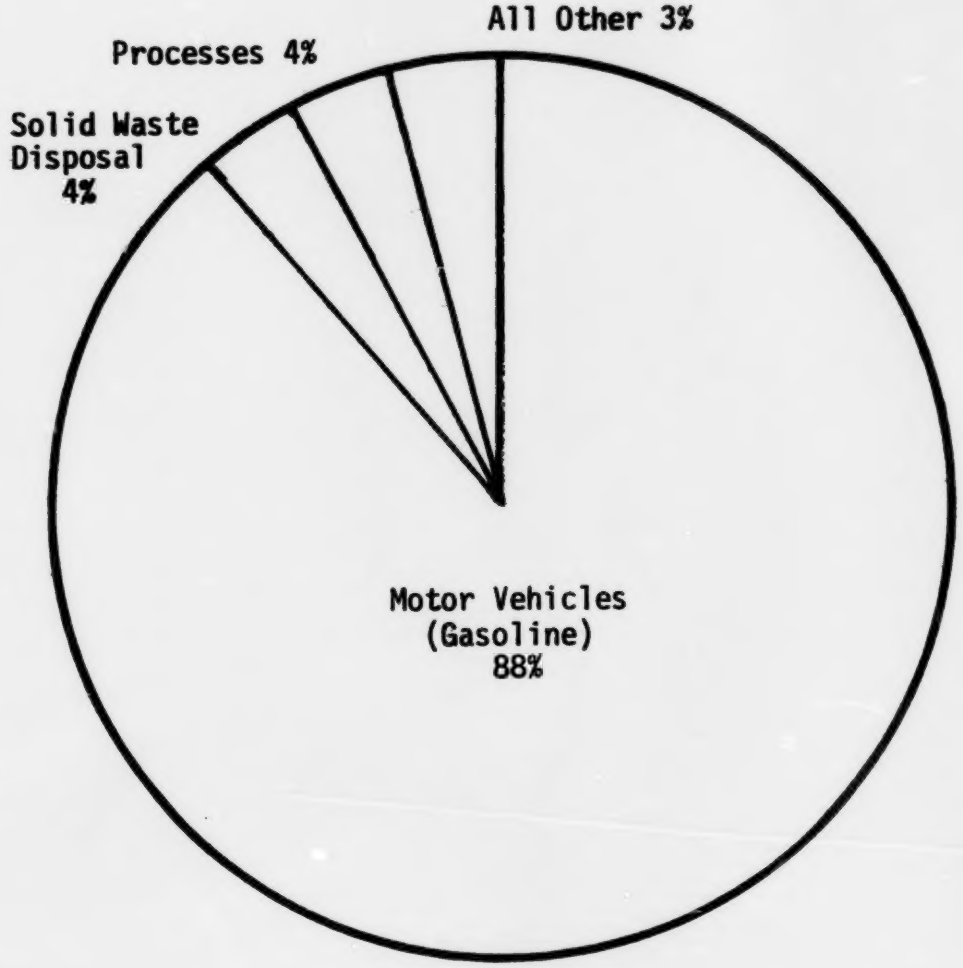


SO_2 Emissions

Richland-Lexington Counties

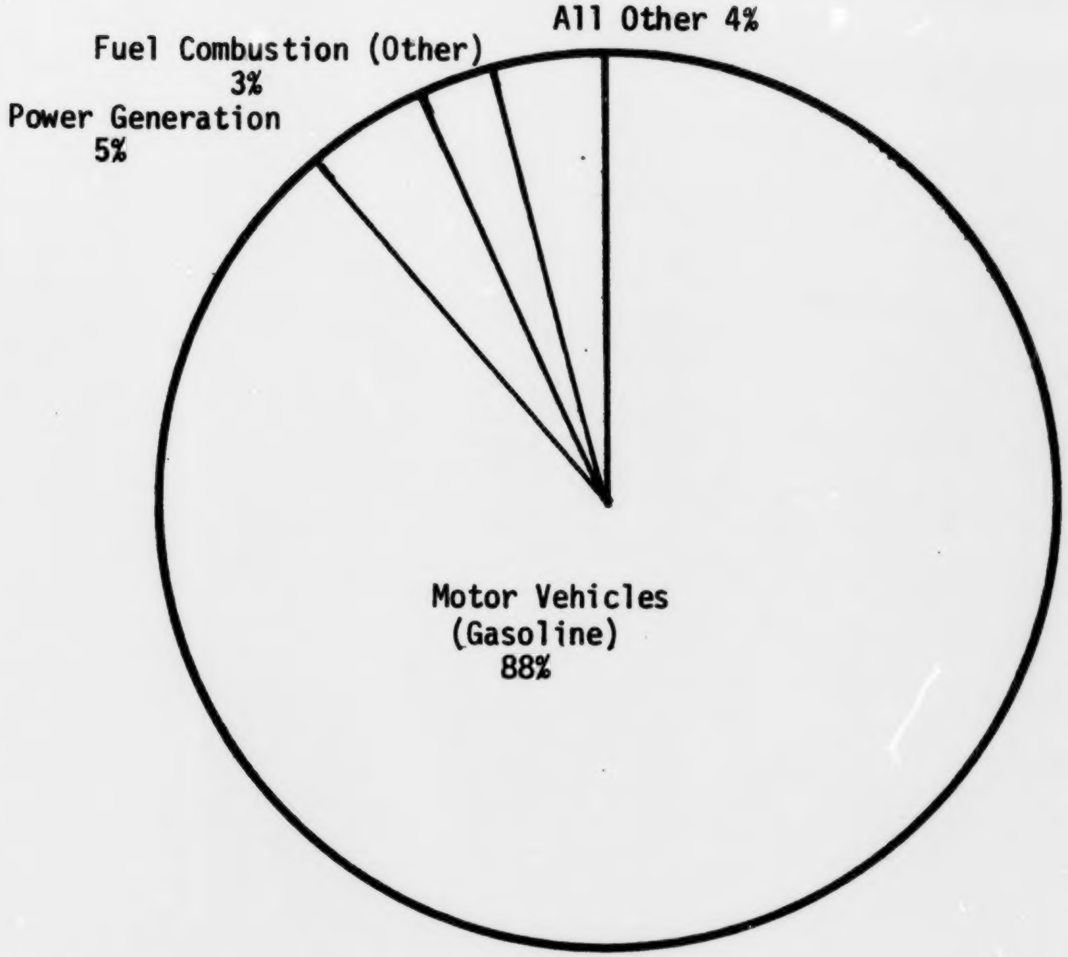


CO Emissions



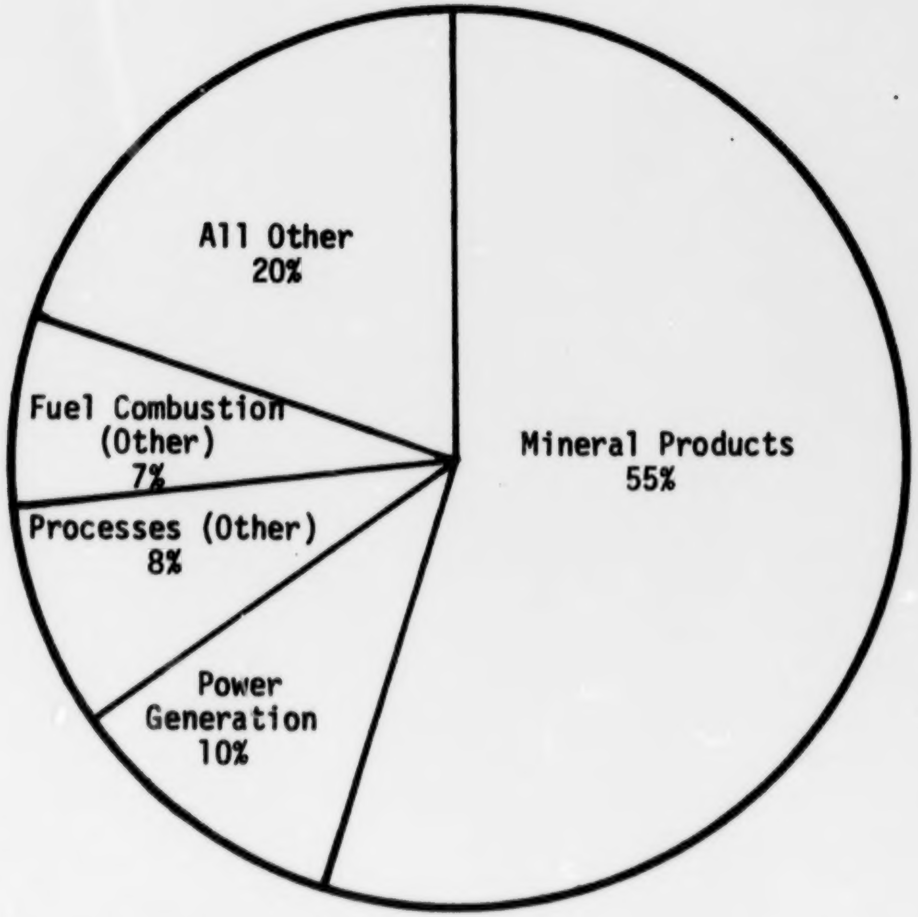
HC Emissions

Richland-Lexington Counties

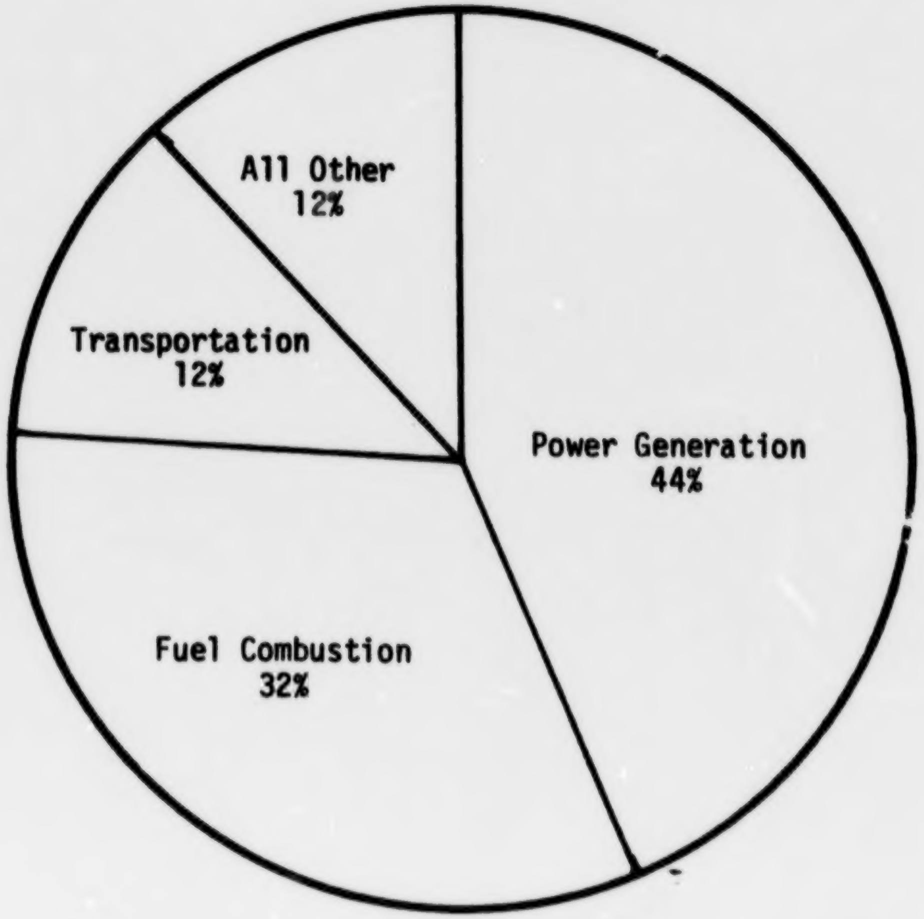


NO_x Emissions

Region 201

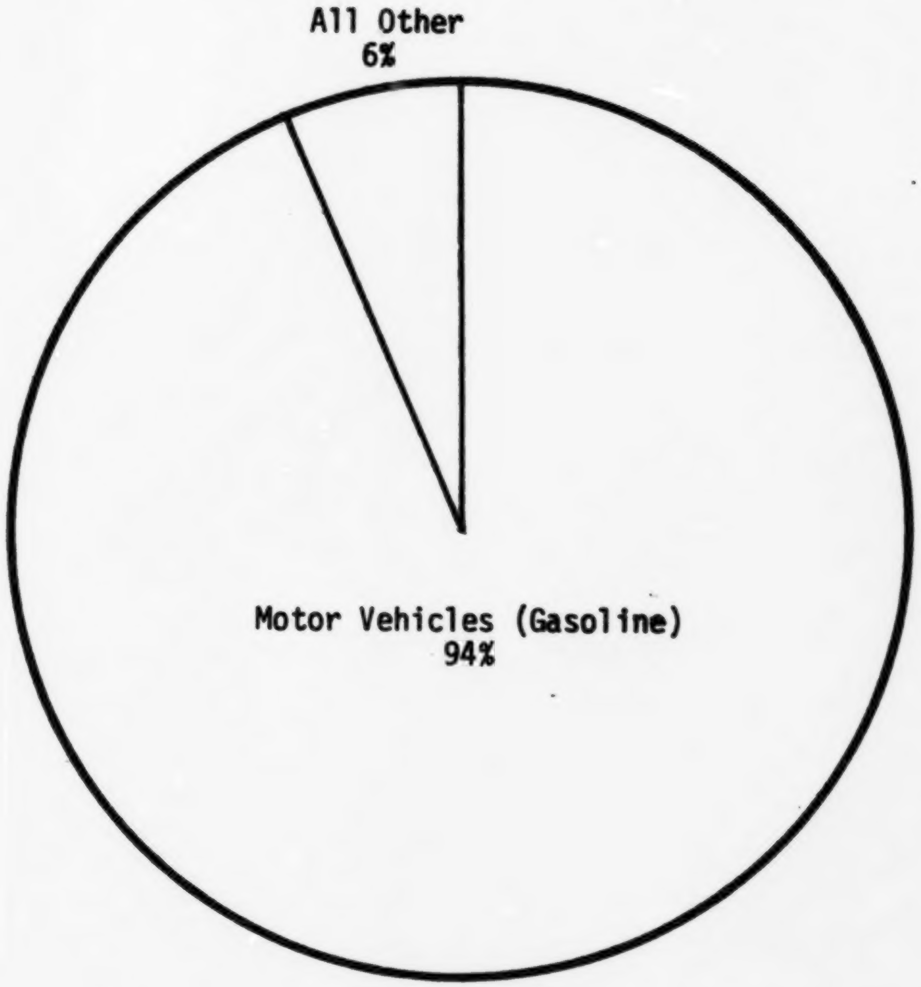


Particulate Emissions

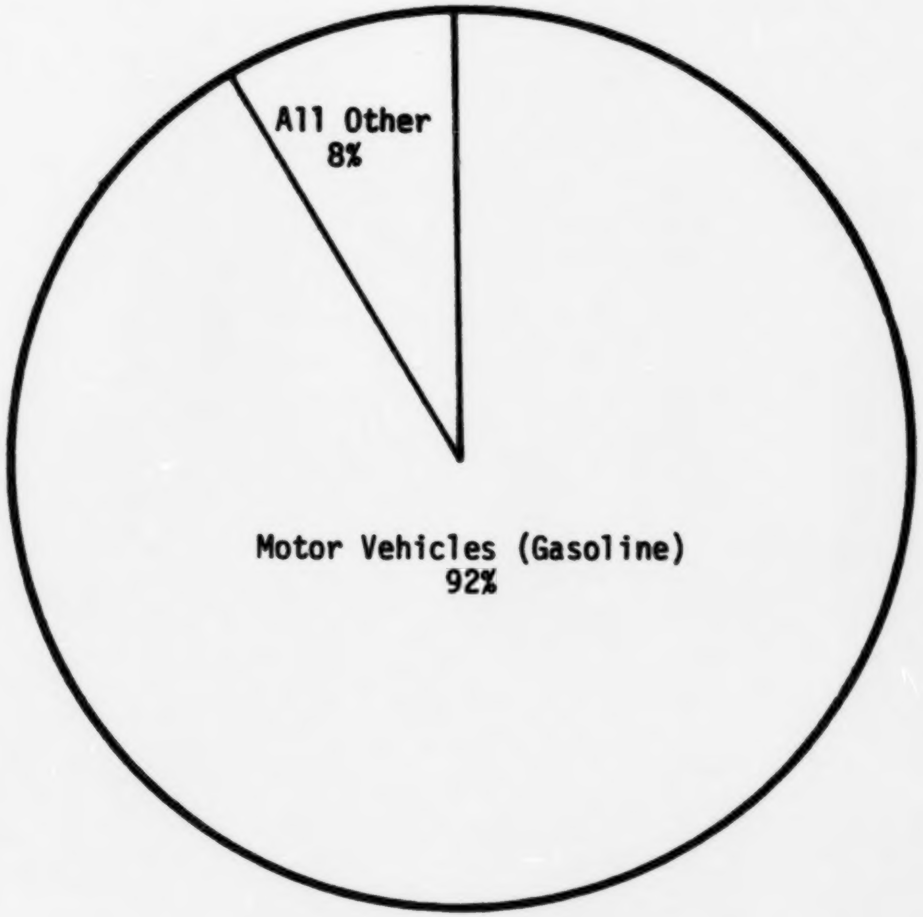


SO_2 Emissions

Region 201

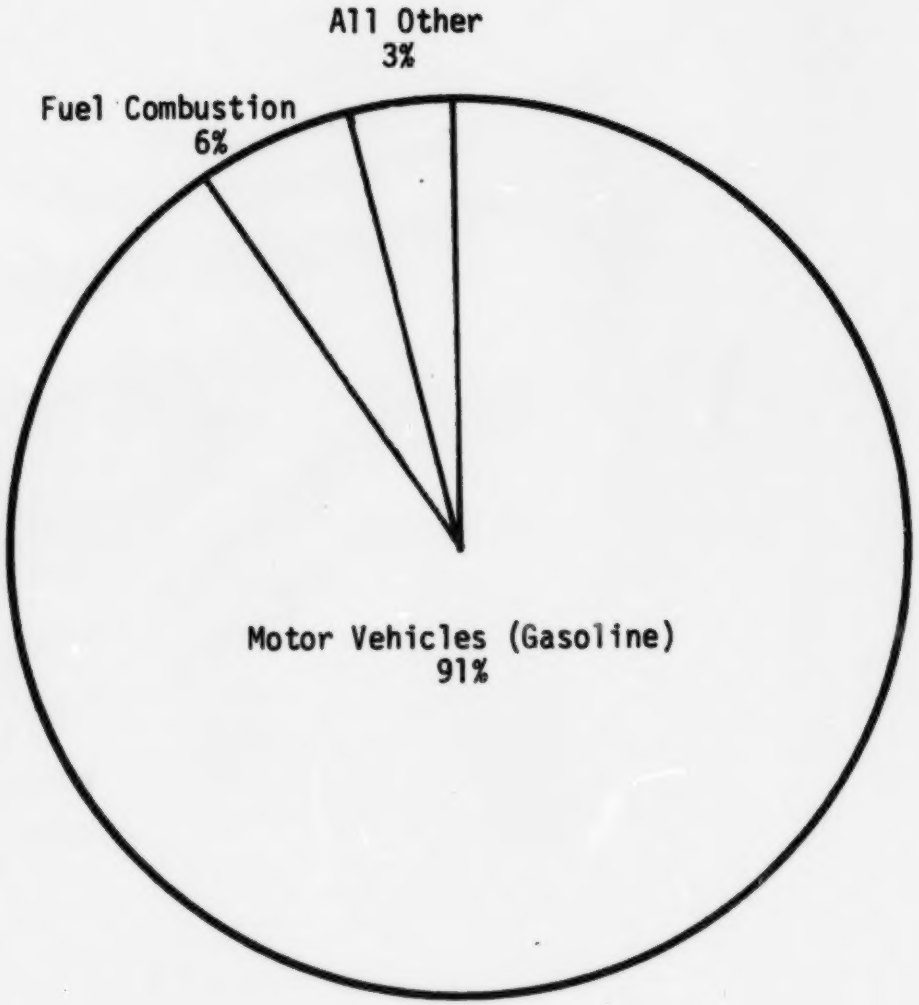


CO Emissions



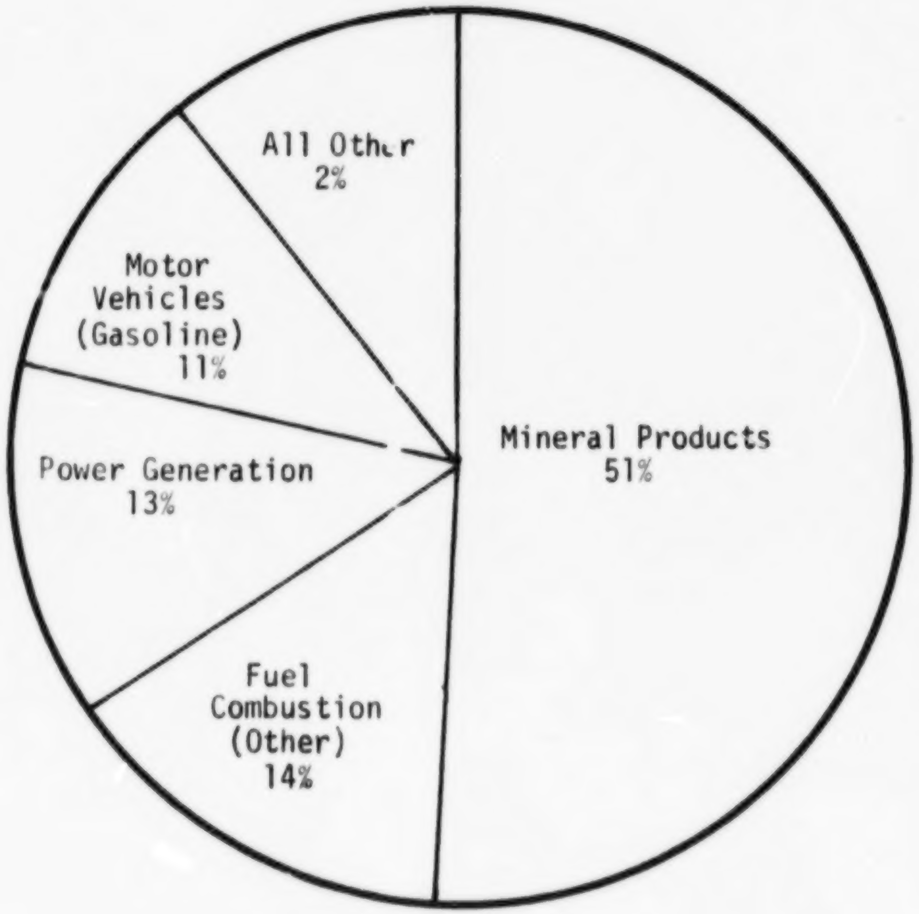
HC Emissions

Region 201



NO_x Emissions

Region 202



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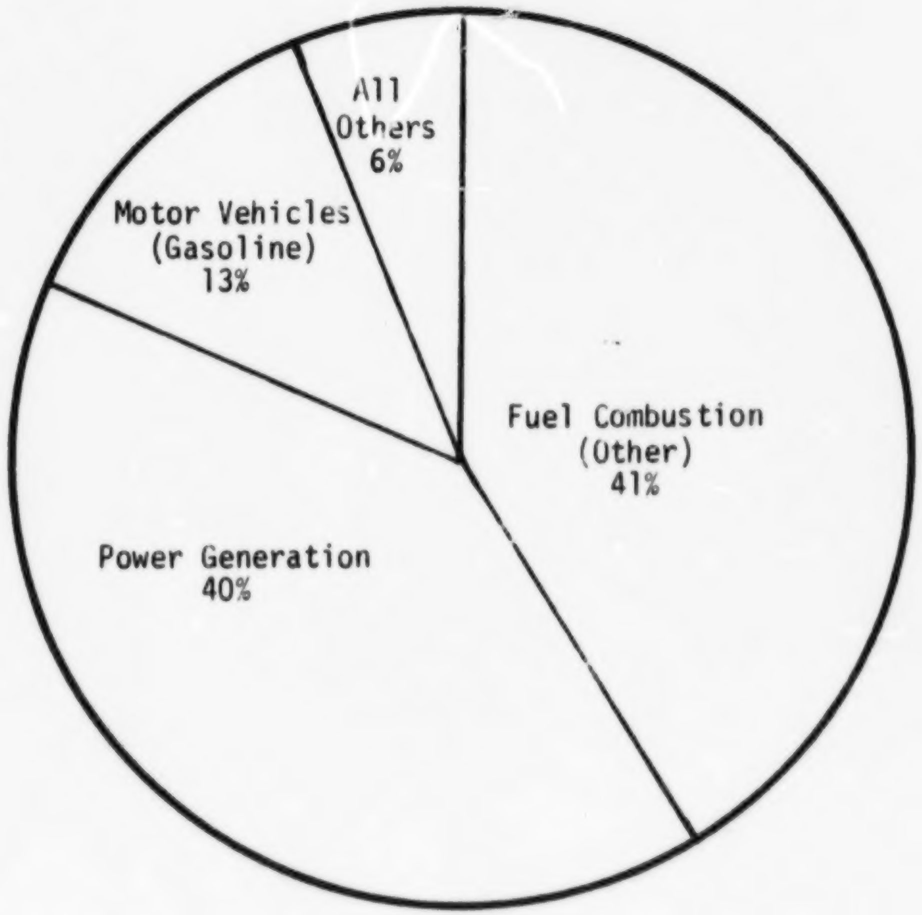
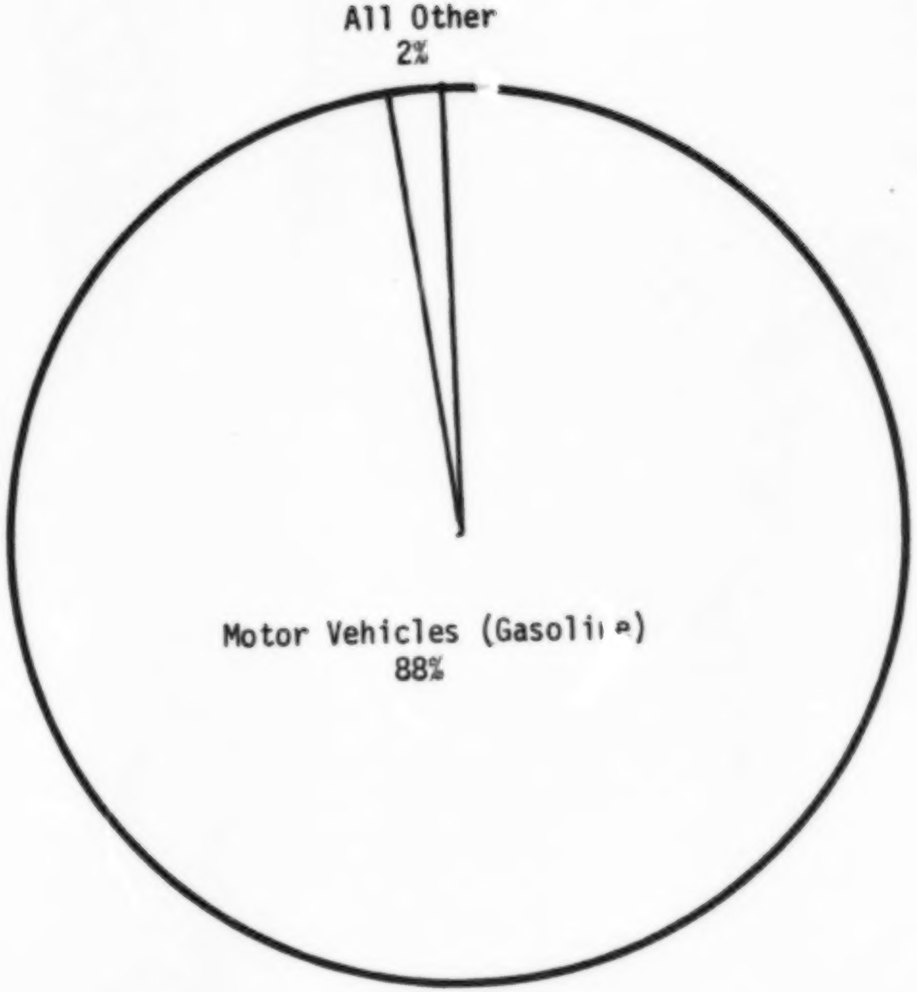
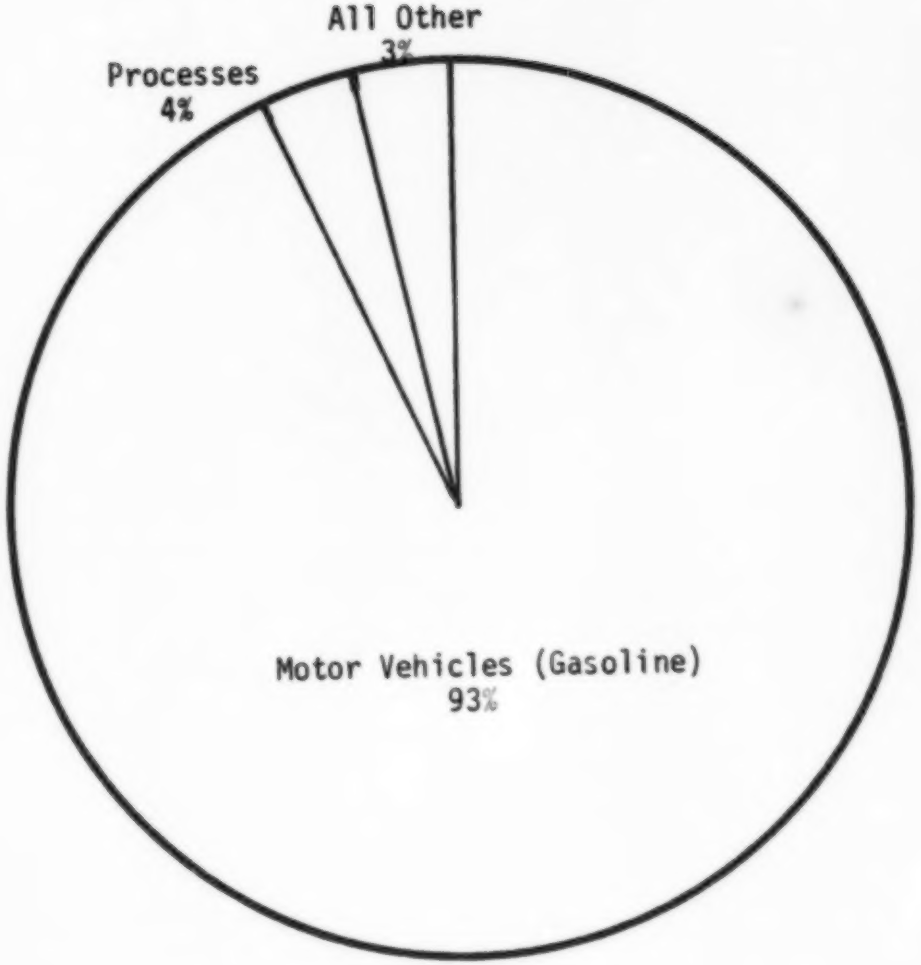


SO_2 Emissions

Region 202

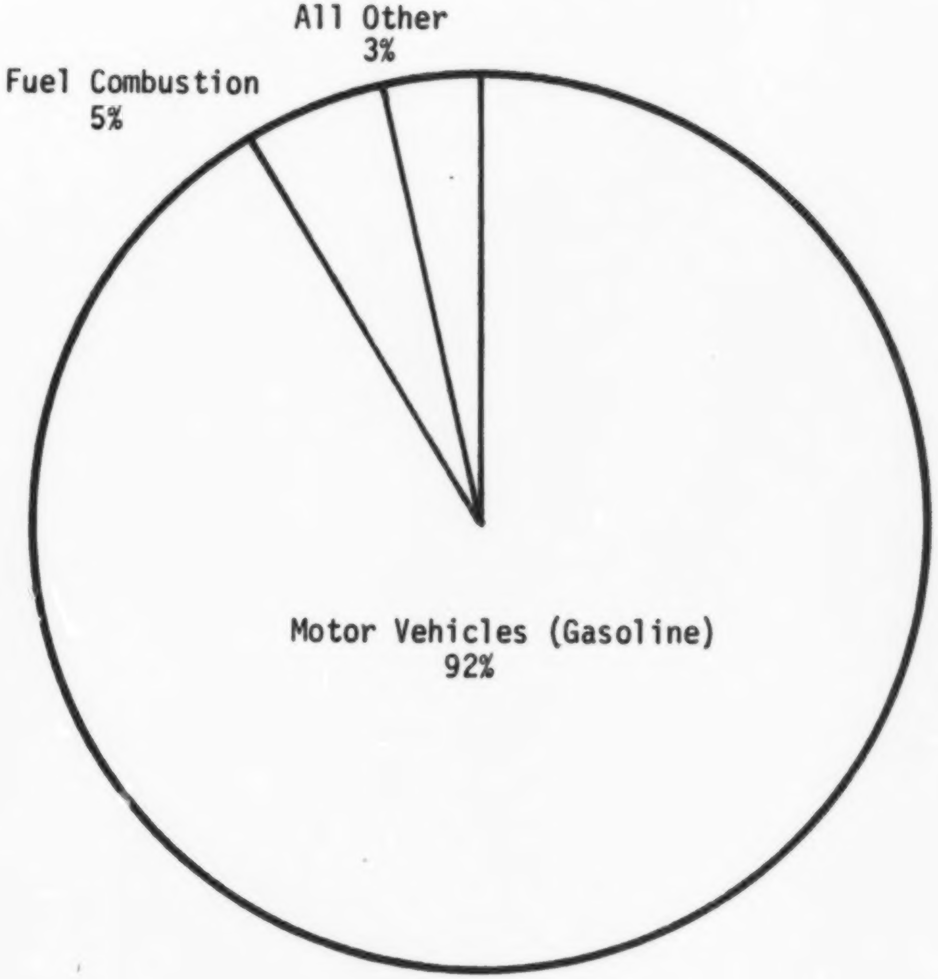


CO Emissions



HC Emissions

Region 202



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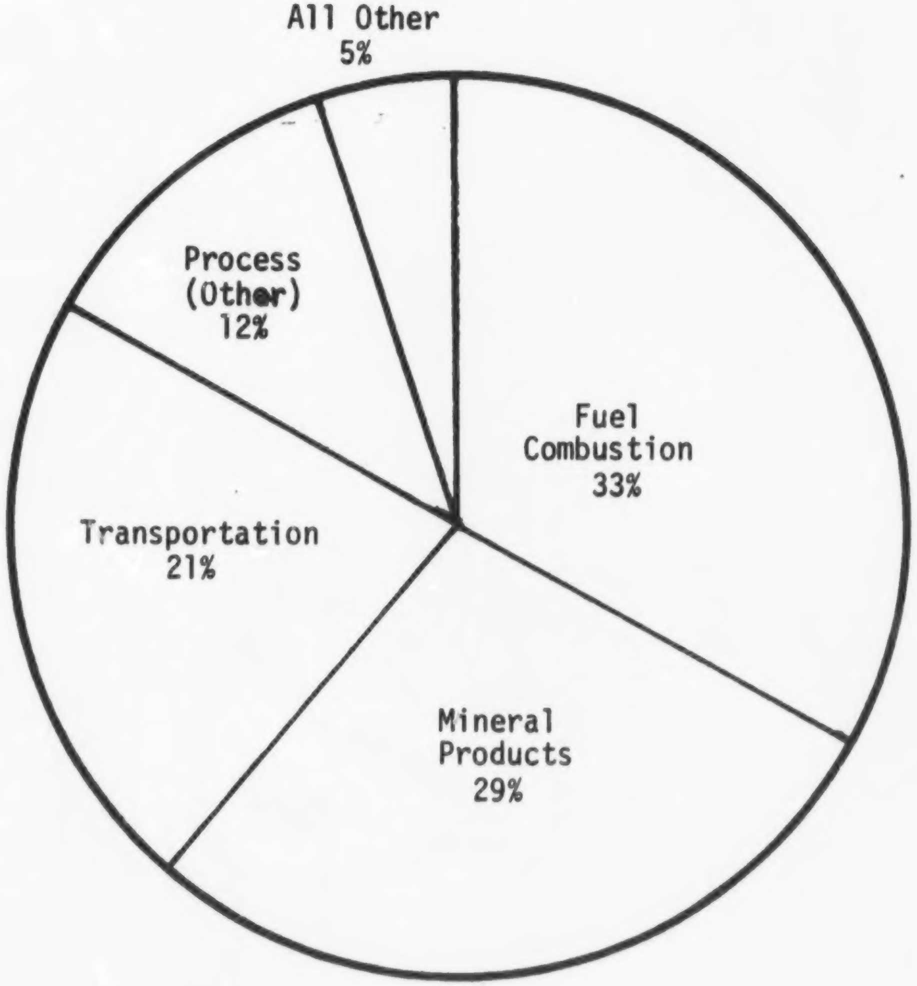
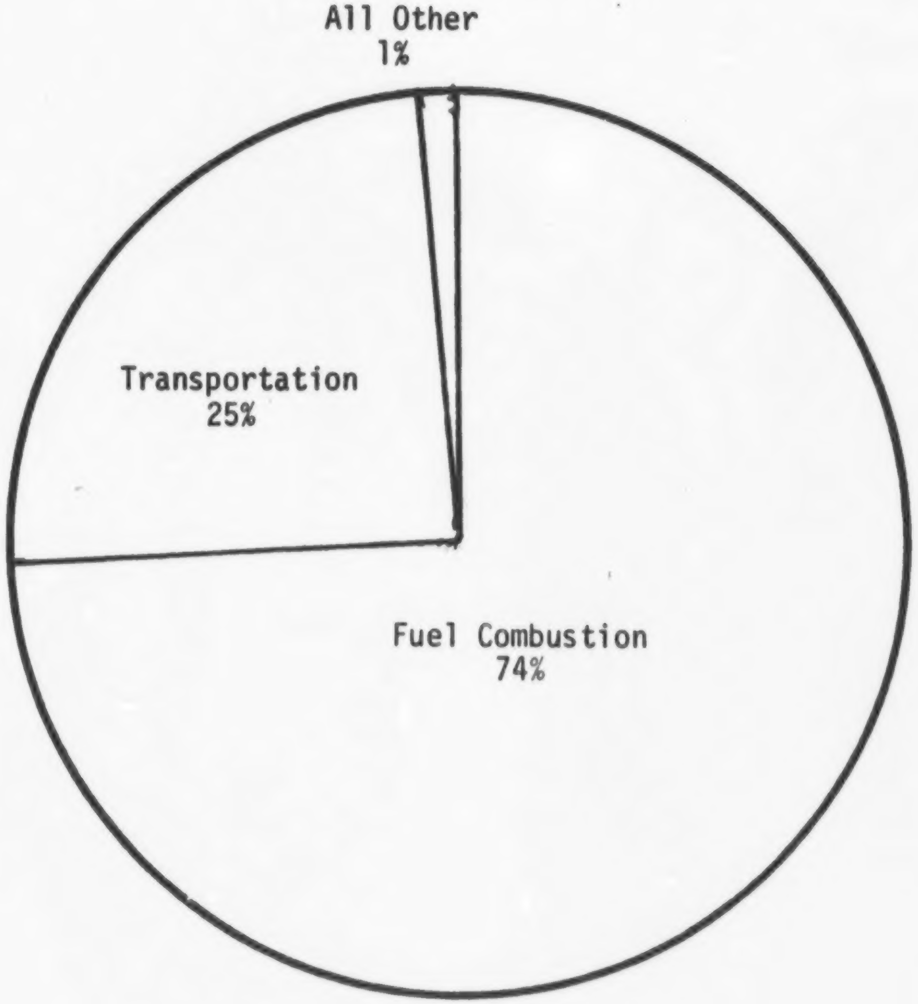
Region - Greenville-Spartanburg Counties

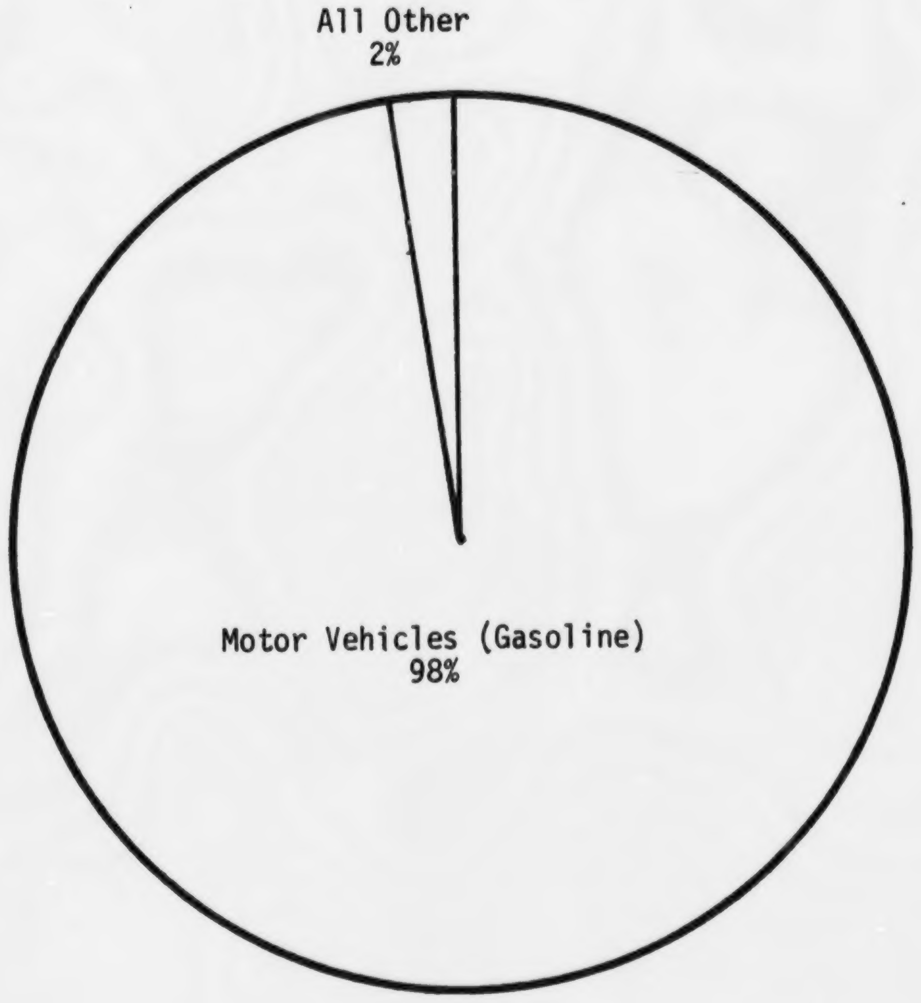


Particulate Emissions



SO_2 Emissions

Region - Greenville-Spartanburg Counties



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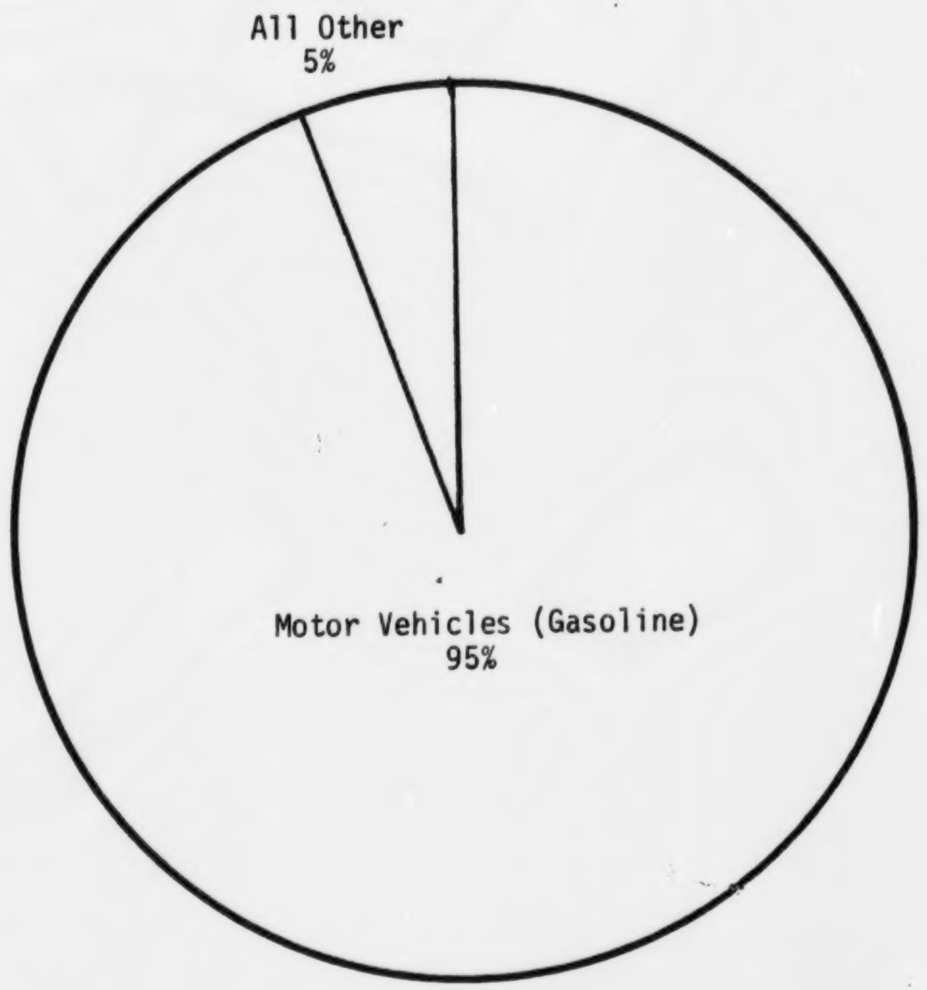
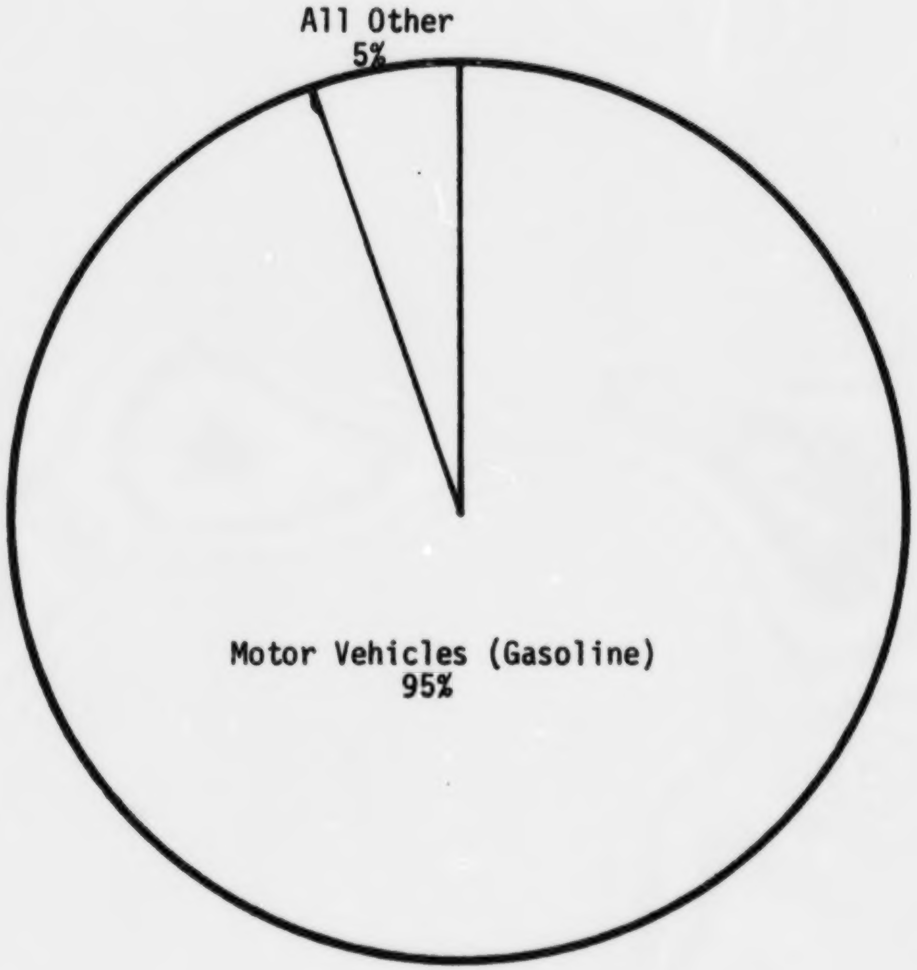


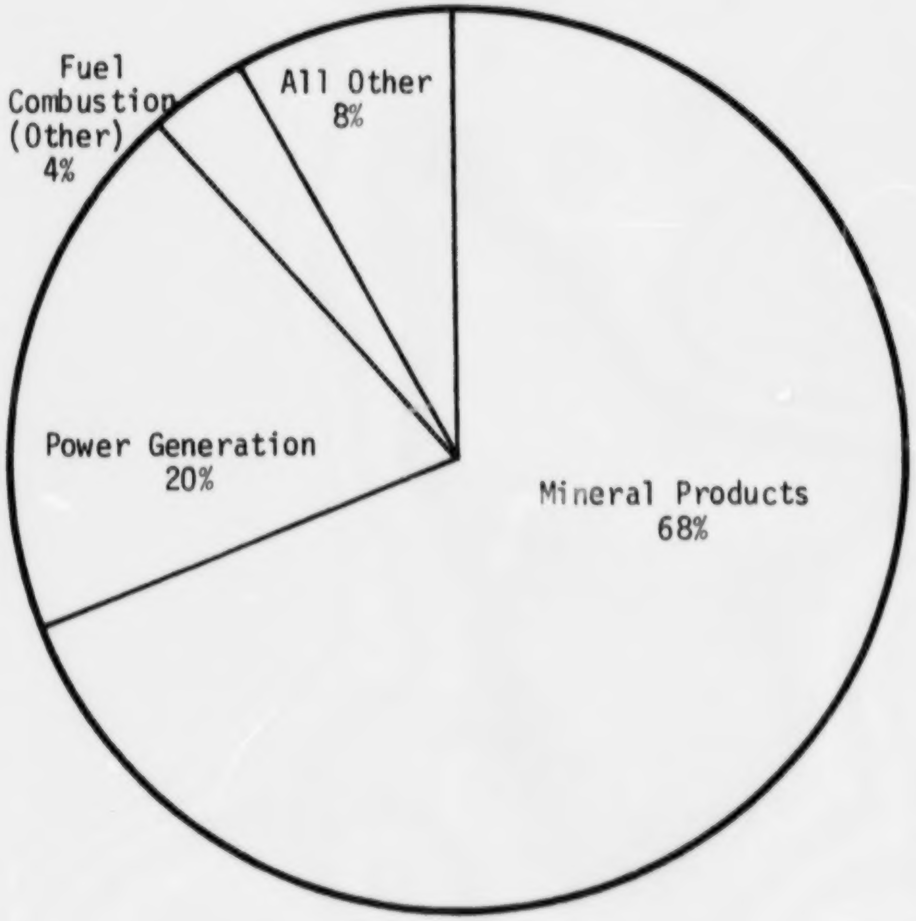
HC Emissions

Region - Greenville-Spartanburg Counties



NO_x Emissions

Region 203



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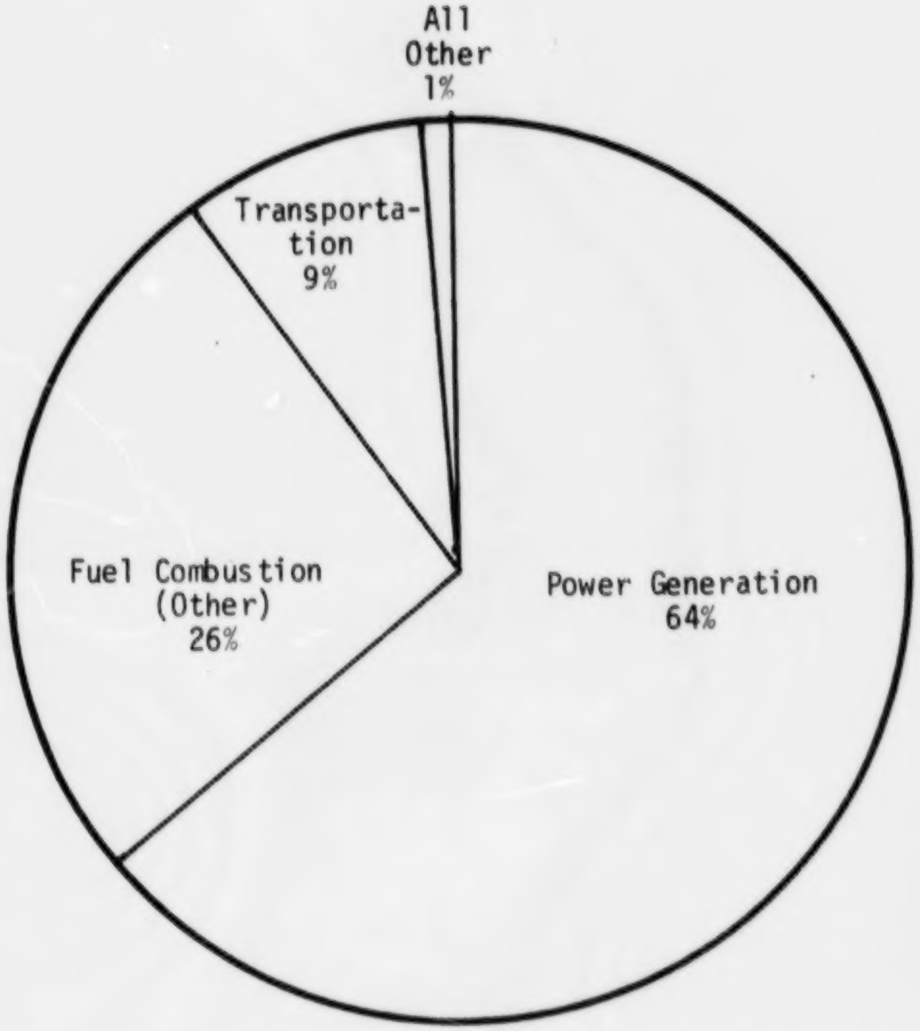

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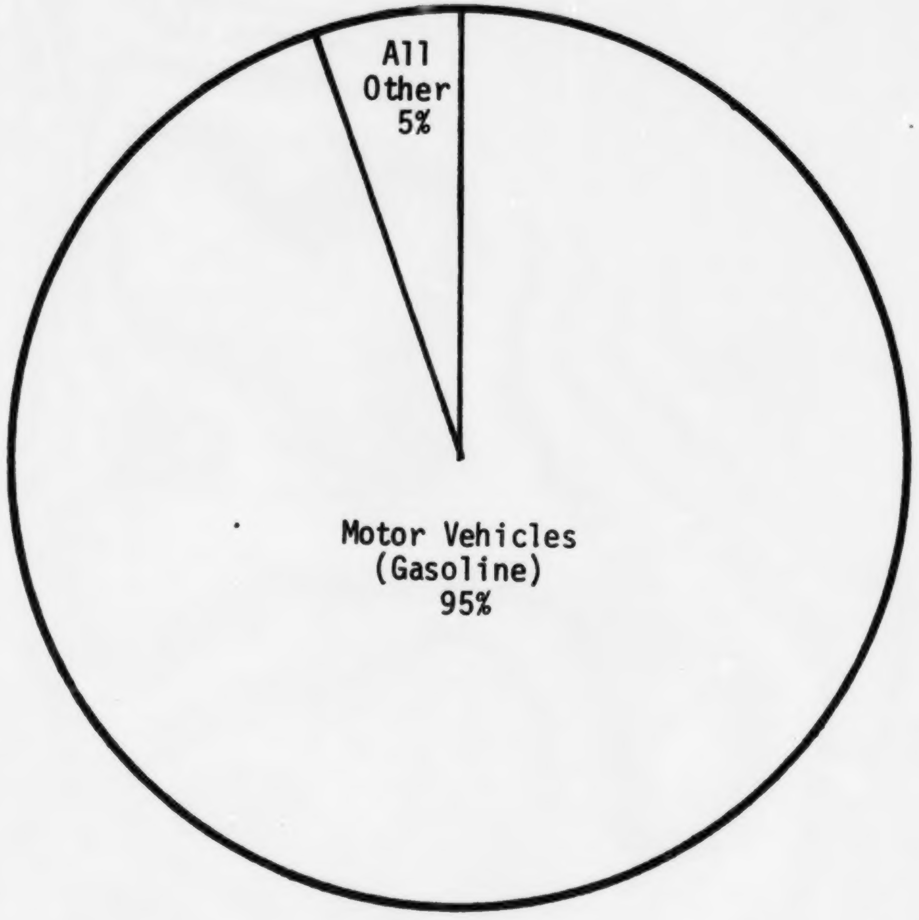

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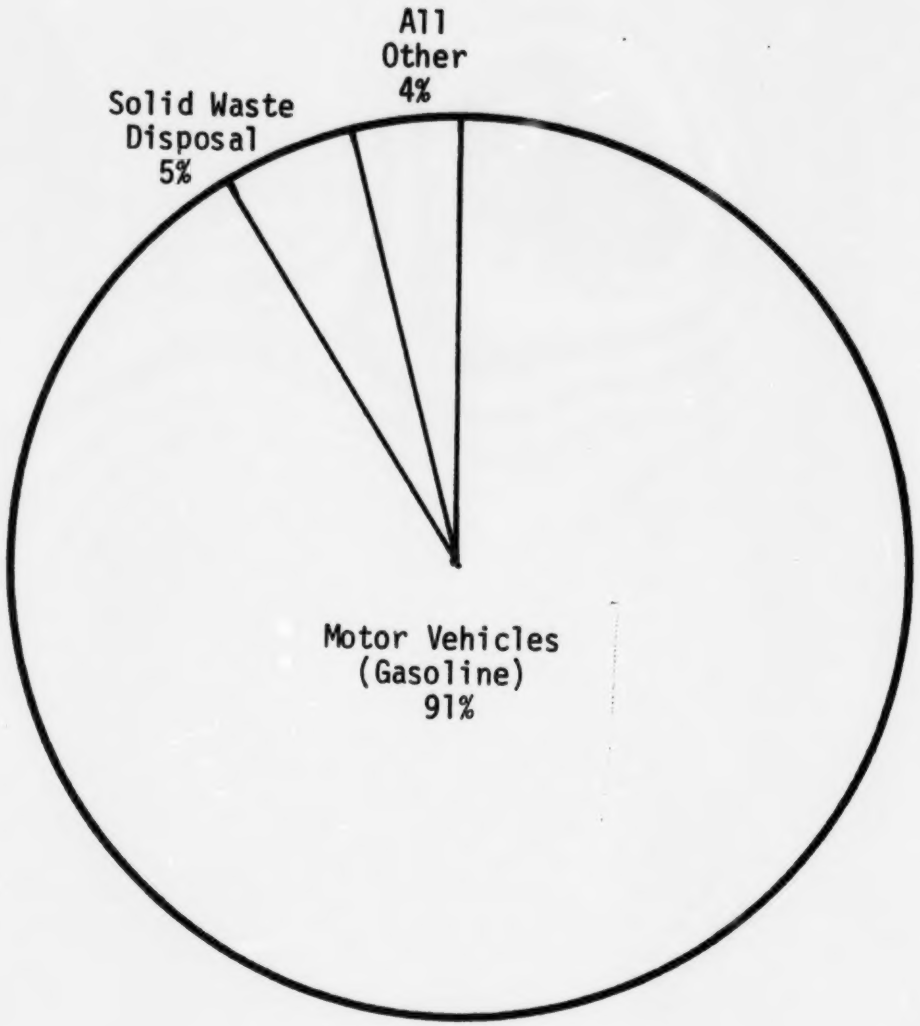

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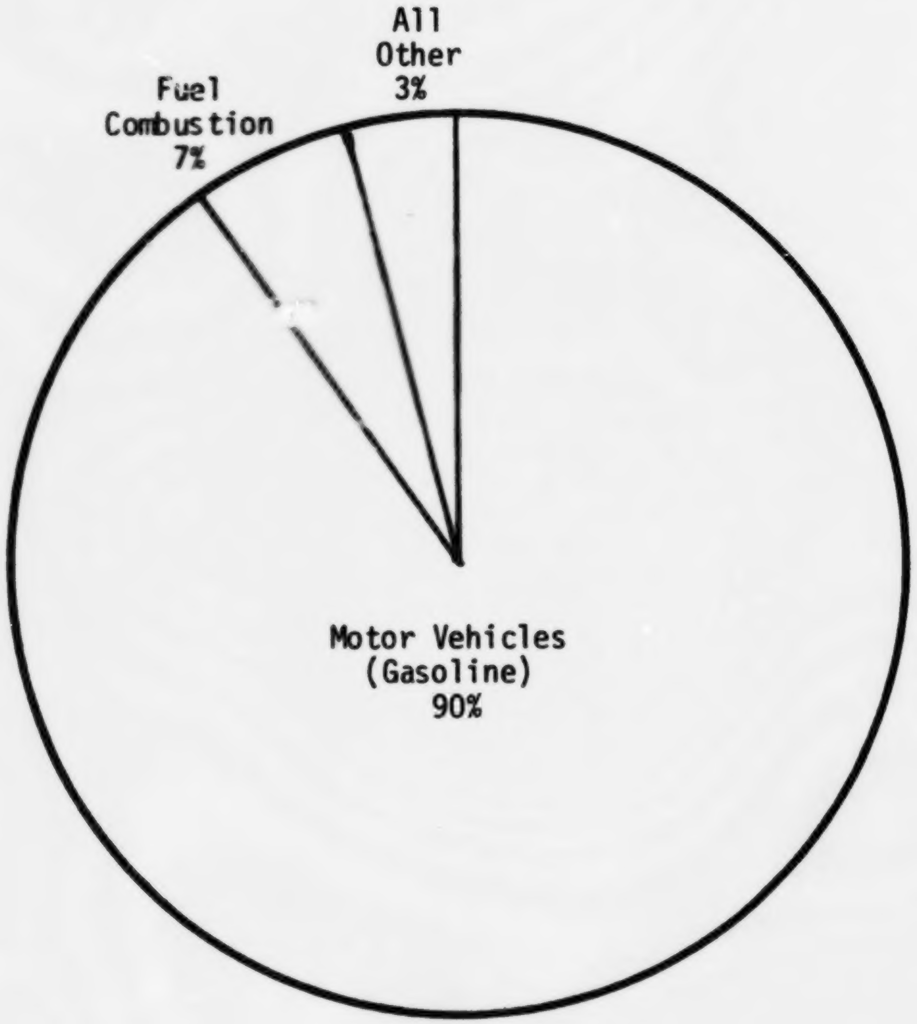

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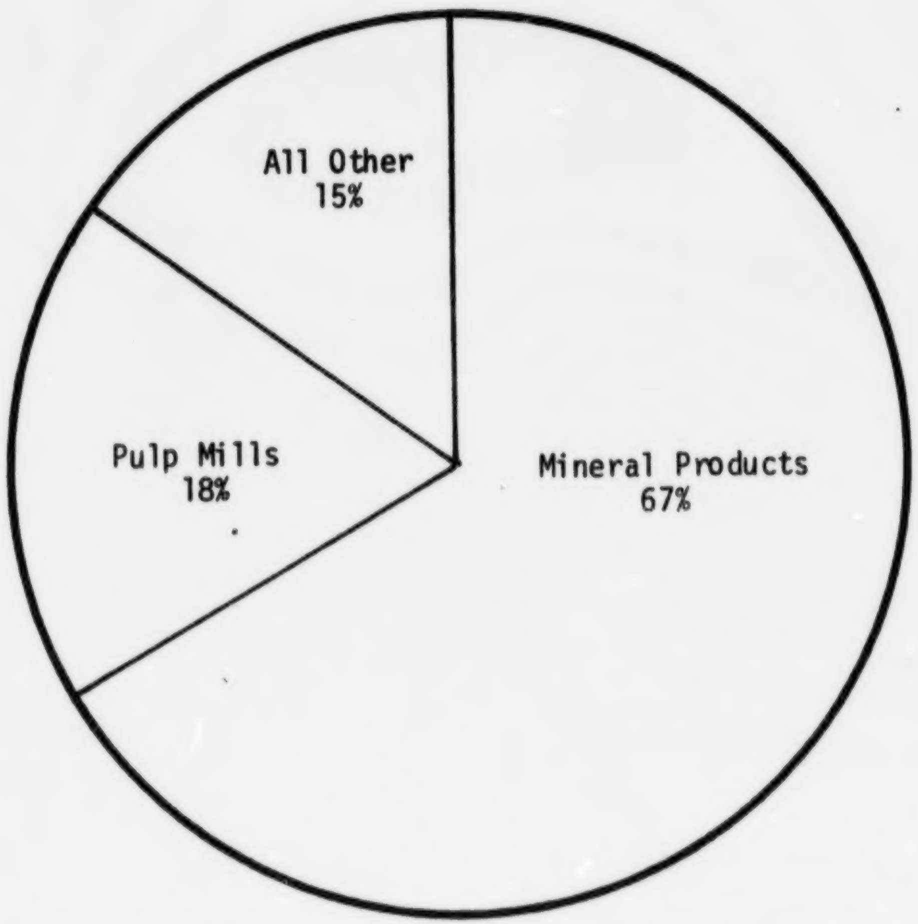

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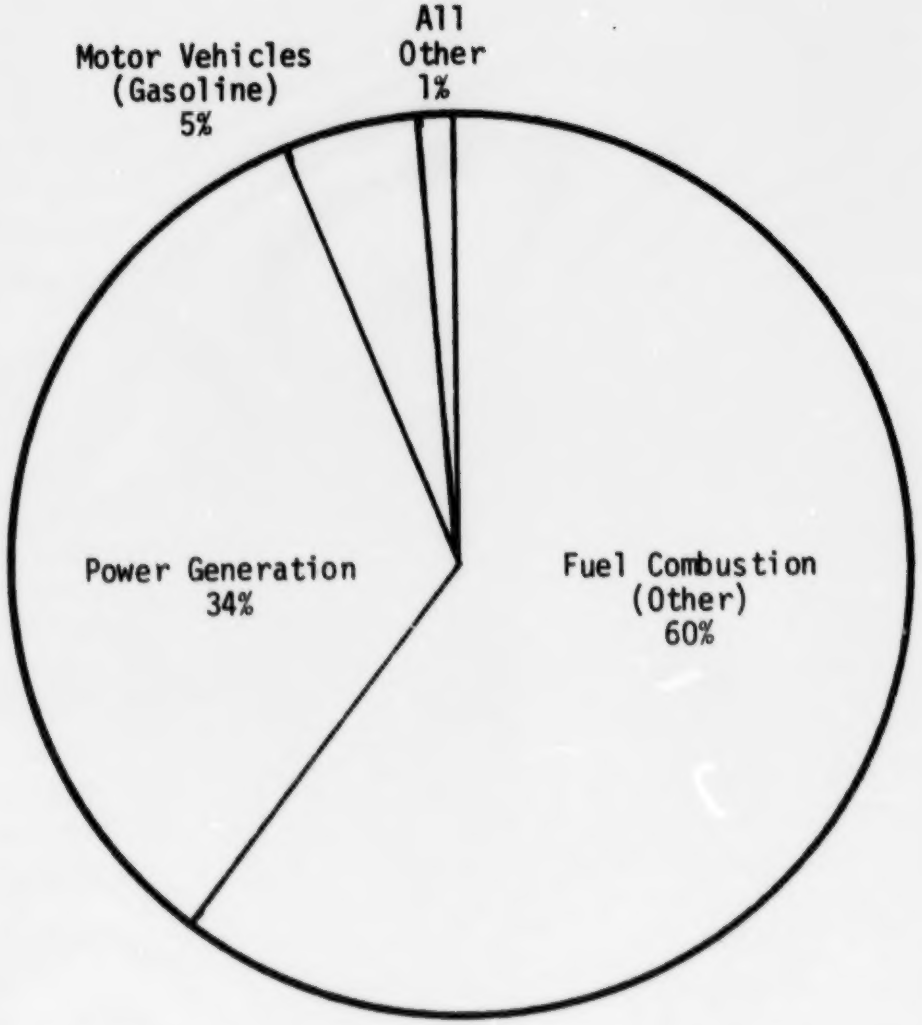

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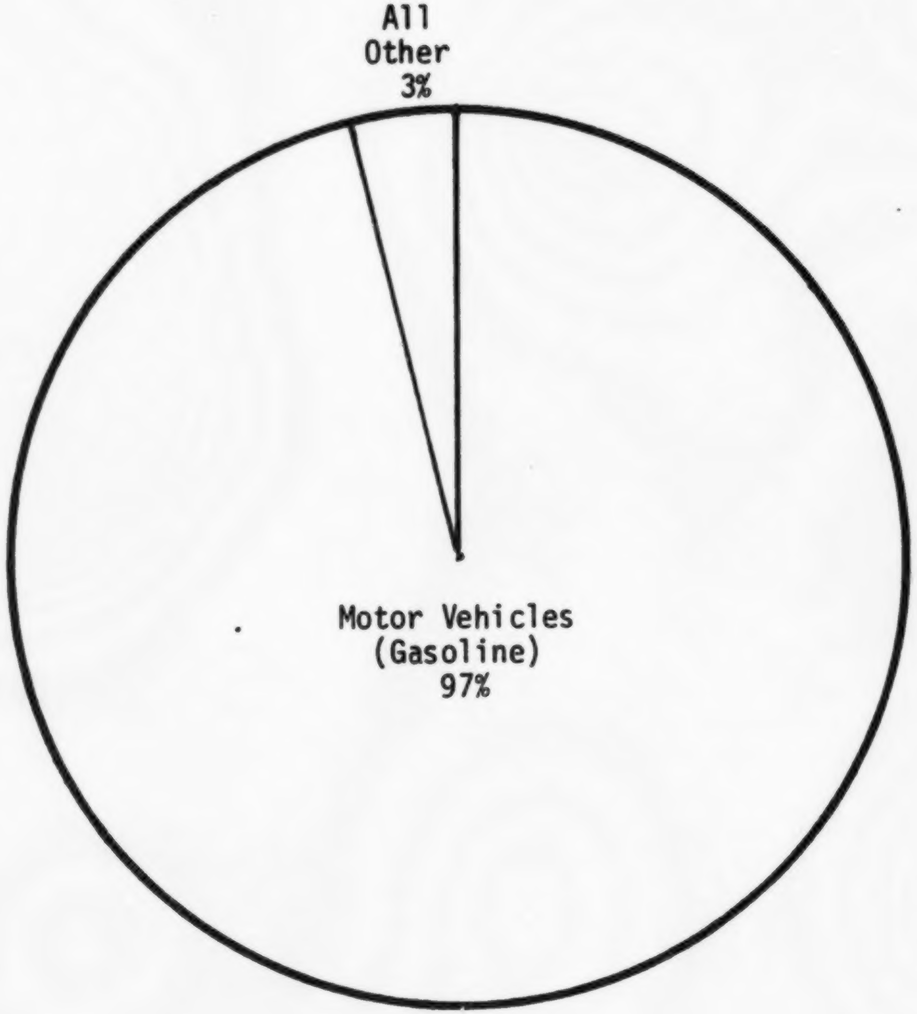

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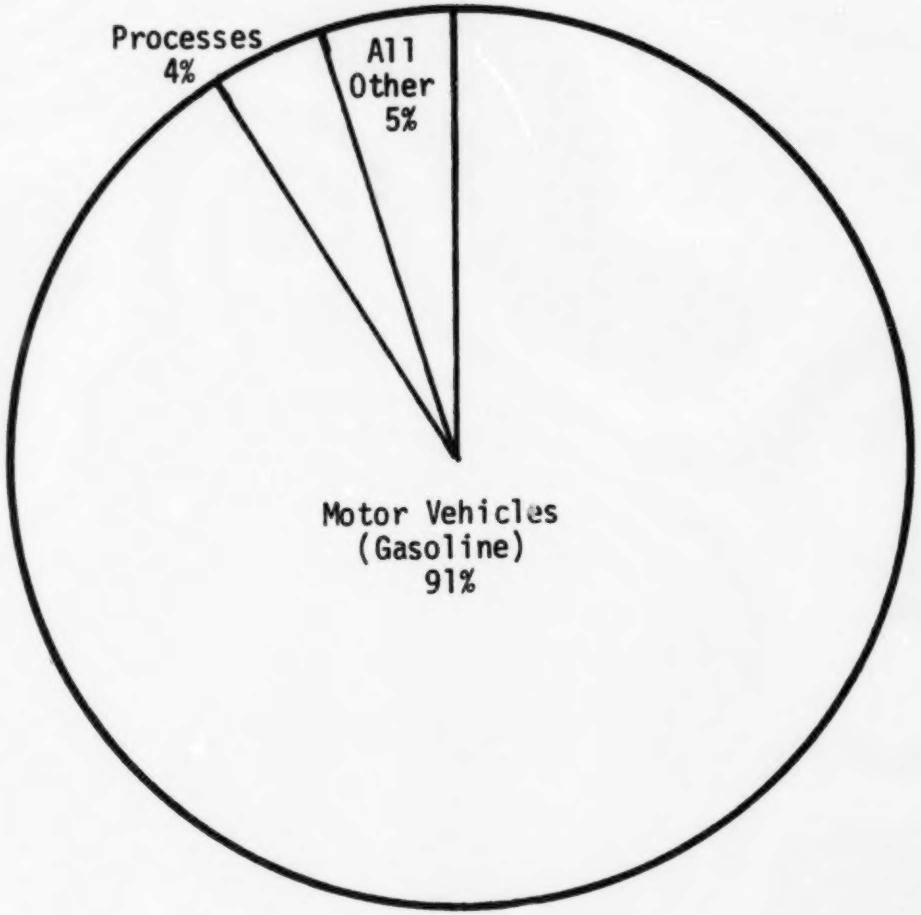

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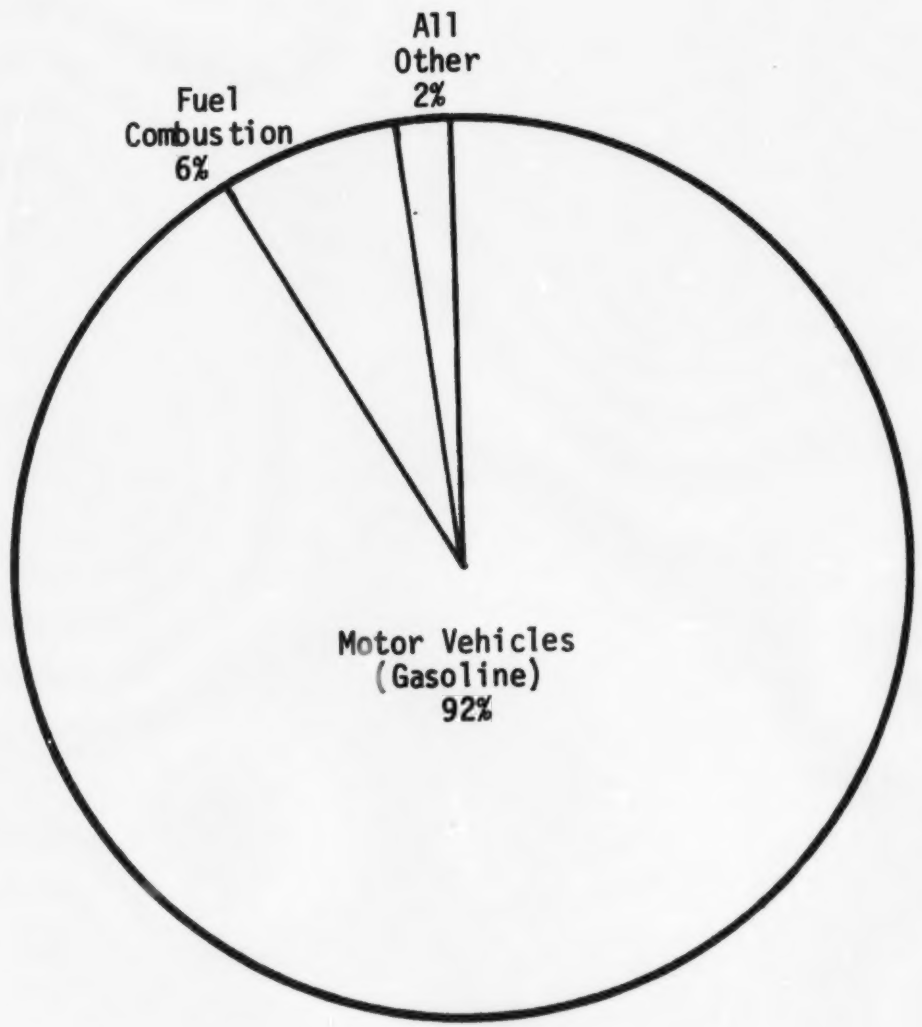
Region 204



NO_x Emissions

6. REFERENCES

6.1 U. S. GOVERNMENT PUBLICATIONS AND UNPUBLISHED DATA

6.1.1 Bureau of Mines Publications

- "Natural Gas," Minerals Yearbook, 1969.
- "Coal - Pennsylvania Anthracite," Minerals Yearbook, 1969.
- "Crude Petroleum and Petroleum Products," Minerals Yearbook, 1969.
- "Coal - Bituminous and Lignite," Minerals Yearbook, 1969.
- "Sales of Fuel Oil and Kerosine in 1969," Mineral Industry Surveys.
- "Sales of Liquefied Petroleum Gases and Ethane in 1969," Mineral Industry Surveys.
- Phone conversation with Mr. Westerstraum.

6.1.2 Bureau of Census Publications

- "1970 Census of Housing - South Carolina," January 1971.
- "1960 Census of Housing"
- "1970 Census of Population (Advance Report," December 1970.
- "Wholesale Trade - Petroleum Bulk Stations and Terminals," December 1970.
- "Retail Trade - Gasoline Service Stations and LP Gas Dealers," March 1971.
- "Wholesale Trade - South Carolina," November 1969.
- "Retail Trade - South Carolina."
- "South Carolina," 1967 Census of Manufacturing, September 1970.

6.1.3 Department of Agriculture Publications

- 1969 Wildfire Statistics, Forest Service, July 1970.
- Phone conversation with Mr. Dieterich (U. S. Department of Agriculture), 1970 prescribed burning totals for Alabama.

6.1.4 Department of Commerce Publications

- "South Carolina Climatological Data," July 1970.
- "South Carolina Climatological Data," July 1969.

6.1.5 Department of Health, Education and Welfare Publications

- "Atmospheric Emissions from Coal Combustion," April 1966.
- "EPA Emission Factors," McGraw and Duprey, (Preliminary Document) April 1971.
- "Air Pollutant Emission Inventory Techniques," Bierbaum and Gedgaudas.
- "The Fuel of Fifty Cities," Ernst and Ernst, November 1968.

6.2 STATE OF SOUTH CAROLINA PUBLICATIONS AND UNPUBLISHED DATA

- "Traffic Summary for Calendar Year 1969," State Highway Department, Columbia, in cooperation with U. S. Department of Transportation.
- "Highway Speed Study," State Highway Department, Columbia, in cooperation with U. S. Department of Transportation, August 1970.
- "Traffic Flow Diagrams - 1970 - Charleston, Greenville, Spartanburg," State Highway Department, Columbia, in cooperation with U. S. Department of Transportation.
- "Monthly Fire Report," State Commission of Forestry, 1970.
- General land use maps for Charleston, Greenville, and Spartanburg supplied by the State Agency.
- "South Carolina Solid Waste Management Plan," South Carolina Pollution Control Authority, Solid Waste Department, June 1971.

6.3 OTHER REFERENCES

- Phone conversation with Mr. Hodges, American Petroleum Institute, Statistical Division.

APPENDIX A

POINT SOURCE FORMS

09001-2
State Budget & Control Boa
Approval Expires 12/31/71

Return To: S. C. Pollution Control Authority
Division of Air Pollution Control
Post Office Box 11628
Columbia, South Carolina 29211

AIR CONTAMINANT EMISSIONS SURVEY

Information is to be representative of Calendar Year

Return Within Fourteen (14) Days

FOR OFFICE USE ONLY
Received By:
Reviewed By:
County:
SIC Number:
Coordinates:

Firm name: ____
Person to contact regarding this report: ____ Title: ____ Phone: ____
Mailing address: ____
Plant address: ____
Nature of business: (Products) ____
Employees at plant location: ____ ; If seasonal, give range ____. Approximate land area at plant location: ____

SECTION 1 – FUEL USE FOR GENERATION OF HEAT, STEAM, AND POWER

Normal operating schedule: ____ Hours per day ____ Days per week ____ Weeks per year ____
Seasonal and/or peak operation period: (Specify) ____
Estimate of percent of total fuel consumed to provide space heat: ____

	A	B	C	D	E	F	G	H	I	J	K	L
						Fuel data $^{(D)}$			Air cleaning equipment		Estimate of contaminants $^{(M}$	
Source No.	Size of unit(input)$^{(B)}$ 10^6 Btu hr	Type unit $^{(C)}$	Installation Date	Type fuel $^{(F)}$	Amount per year $^{(F)}$	Heat content $^{(G)}$ Btu	Percent sulfur $^{(G-H)}$	Percent ash (coal only) $^{(G-H)}$	Type $^{(I)}$	Efficiency $^{(J)}$ %	Type $^{(K)}$	Quantity $^{(L)}$

SECTION II – REFUSE DISPOSAL

Refuse disposed of ____ On site ____ Off site – Location of disposal site and/or name of hauler: ____
Normal on-site combustion operating schedule: ____ Hours per day ____ Days per week ____ Weeks per year ____
Seasonal and/or peak operation period: (Specify) ____

	A	B	C	D	E	F	G	H
	Waste material						Estimate of contaminants $^{(M)}$	
Source No.$^{(A)}$	Type $^{(N)}$	Amount per year $^{(F)}$	Method of disposal (See Code Page 2)	Incinerator capacity, lb/hr	Auxiliary fuel used $^{(O)}$	Type and efficiency, air cleaning equipment $^{(I-J)}$	Type $^{(K)}$	Quantity per year $^{(L)}$

USE ADDITIONAL SHEETS IF NECESSARY

AIR CONTAMINANT EMISSIONS SURVEY

SECTION III – PROCESS EMISSIONS

Normal operating schedule: __________ Hours per day __________ Days per week __________ Weeks per year __________

Seasonal and/or peak operation period: __________

NOTE: For intermittent operations, indicate approximate frequency and duration so that estimates of yearly emissions may be obtained.

	A	B	C	D	E	F	G	H	I
Source No.[A]	Processes or operations releasing contaminants to atmosphere (A - P)	Installation Date	Materials processed and/or used at operations		Quantity of gas discharged from process or operation	Type and efficiency air cleaning equipment (I - J)	Estimate of contaminants (M)		Basis of estimate (R) (Please specify basis)
			Type (Q)	Quantity per year (F)			Type (K)	Quantity per year (L)	

[a] Give a different no. to represent each source and then give stack data opposite the same number on Section IV.
[b] Nameplate data are sufficient.
[c] Hand-fired; underfeed, traveling-grate or spreader stoker; cyclone furnace; pulverized, wet or dry bottom with or without fly ash reinjection; rotary or gun-type oil burner, etc.
[d] Fuel data are to be reported on "as burred basis"
[e] Coke, bituminous coal, anthracite coal, No. 1, 2, 4, 5 or 6 fuel oil, natural gas; LPG; refinery or coke oven gas; wood, etc.
[f] Pounds, tons, or gallons per year.
[g] If unknown, please give name and address of fuel supplier.
[h] Sulfur and ash content for each fuel should be a weighted average.
[i] Cyclone, scrubber, electrostatic precipitator, baghouse, settling chamber, etc.
[j] Please state if efficiency is a rated or operating efficiency.
[k] Fly ash, sulfur oxides, etc. (include chemical description).
[l] Pounds or tons per year.
[m] Give stack test data if available, or otherwise specify basis used.
[n] Rubbish, garbage, mixed garbage and rubbish, waste paper, wood chips or sawdust, etc.
[o] Indicate whether auxiliary fuel is used in incinerators and pit burning, and the amount.
[p] Sulfuric acid-chamber, aluminum smelting-crucible furnace, iron melting-cupola, cement manufacture-dry process, solvent cleaning, or other (please specify).
[q] Acid produced, tons; metal charged or processed, tons; cement produced, bbl.; solvent consumed, gallons; etc. per year.
[r] Process material balance studies, field tests by plant or by equipment manufacturers, or other basis.
[s] List sources Sections I, II, III which utilize each stack.

METHOD OF DISPOSAL CODE:
1. Open-burning dump.
2. Sanitary landfill. (no burning)
3. Burned in boiler or furnace.
4. Incinerator, single chamber.
5. Incinerator, multiple chamber
6. Incinerator, rotary.
7. Conical metal burner.
8. Other (Specify)

SECTION IV – STACK DATA

SOURCES VENTED (S)	HEIGHT (Feet)	INSIDE DIAMETER (Feet)	EXIT GAS		
			Temperature of	Velocity (FPS)	Moisture (%)

Any supplemental material or data considered pertinent (flow diagrams, reports, summaries, test results, maps) should be submitted with this form.

Date __________ Name and title of official submitting reports __________

USE ADDITIONAL SHEETS IF NECESSARY

APCO (DUR) 1
3/71
REV 3

POINT SOURCE DATA FORM

SOURCE NUMBER	REGION	SIC	SITE	PROCESS CODE	DESCRIPTIVE NAME (a)	COORDINATES KM		POLITICAL JURISDICTION	OWNER (b)	TYPE (c)	OPERATING (hours/year)	STACK PARAMETERS				MAXIMUM GAS VOLUME 10^2 (ACFM)	PLUME RISE (ft^2/sec)	
						X	Y					HEIGHT (ft.)	DIA. (ft.)	TEMP. (°F)	VELOCITY (ft/sec)			A

SOURCE NUMBER	MAXIMUM PROCESS WEIGHT RATE (lb/hr)	NORMAL PROCESS WEIGHT RATE (lb/hr)	COMMENTS (a)	MAXIMUM BOILER CAPACITY (10^6 BTU/hr)	(d) E F	COAL (tons/year)	(d) E F	RESIDUAL OIL (10^3 Gal/year)	(d) E F	DISTILLATE OIL (10^3 Gal/year)	(d) E F	NATURAL GAS (10^6 CF/year)	HEAT CONTENT				
													COAL 10^6 (BTU/ton)	RESIDUAL OIL (10^3 BTU/Gal.)	DIST. OIL (10^3 BTU/Gal.)	NATURAL GAS (BTU/CF)	B

SOURCE NUMBER	% ASH COAL	SULFUR CONTENT				CONTROL EFFICIENCY		DEVICE INDENT	COMMENTS (a)	HAND CALCULATED EMISSIONS (tons/year)					ALLOWABLE EMISSIONS (tons/year)		
		COAL	RESID.	DIST.	NAT. GAS	PART	SO_2			PART.	SO_2	CO	HC	NO_2	PART	SO_2	C

SOURCE NUMBER	COMMENTS (a)	
		D

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

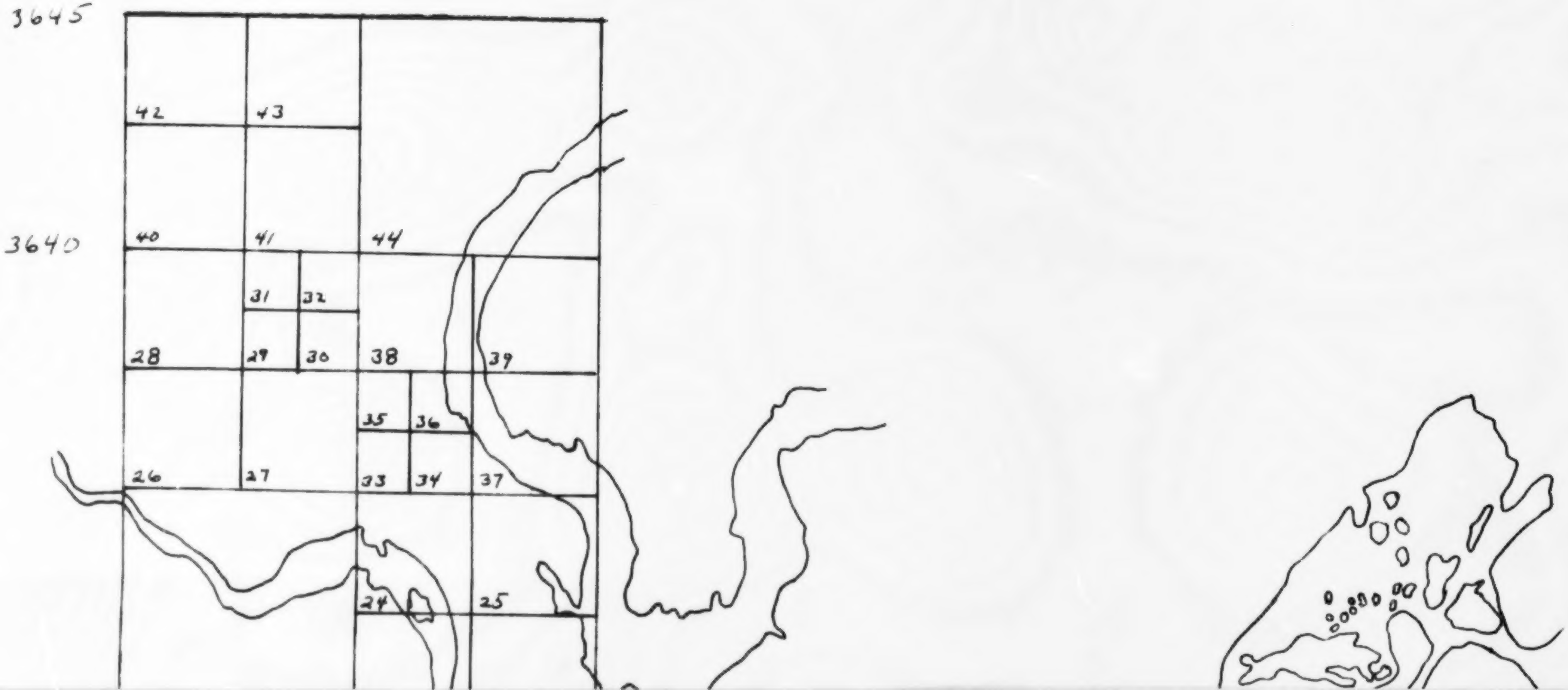
(a) Letters and numbers may be put in these columns
(b) Owner → Private = 1; Local = 2; State = 3; Federal = 4; Utilities = 5.
(c) Type → Process = 1; Fuel Combustion = 2; Solid Waste Disposal = 3.
(d) EF → refers to emission factor set number associated with emission factors on emission factor sheet.

All decimal points are implied and are signified by a ▼ between columns.

APPENDIX B

GRID MAPS

CHARLESTON GRID AREA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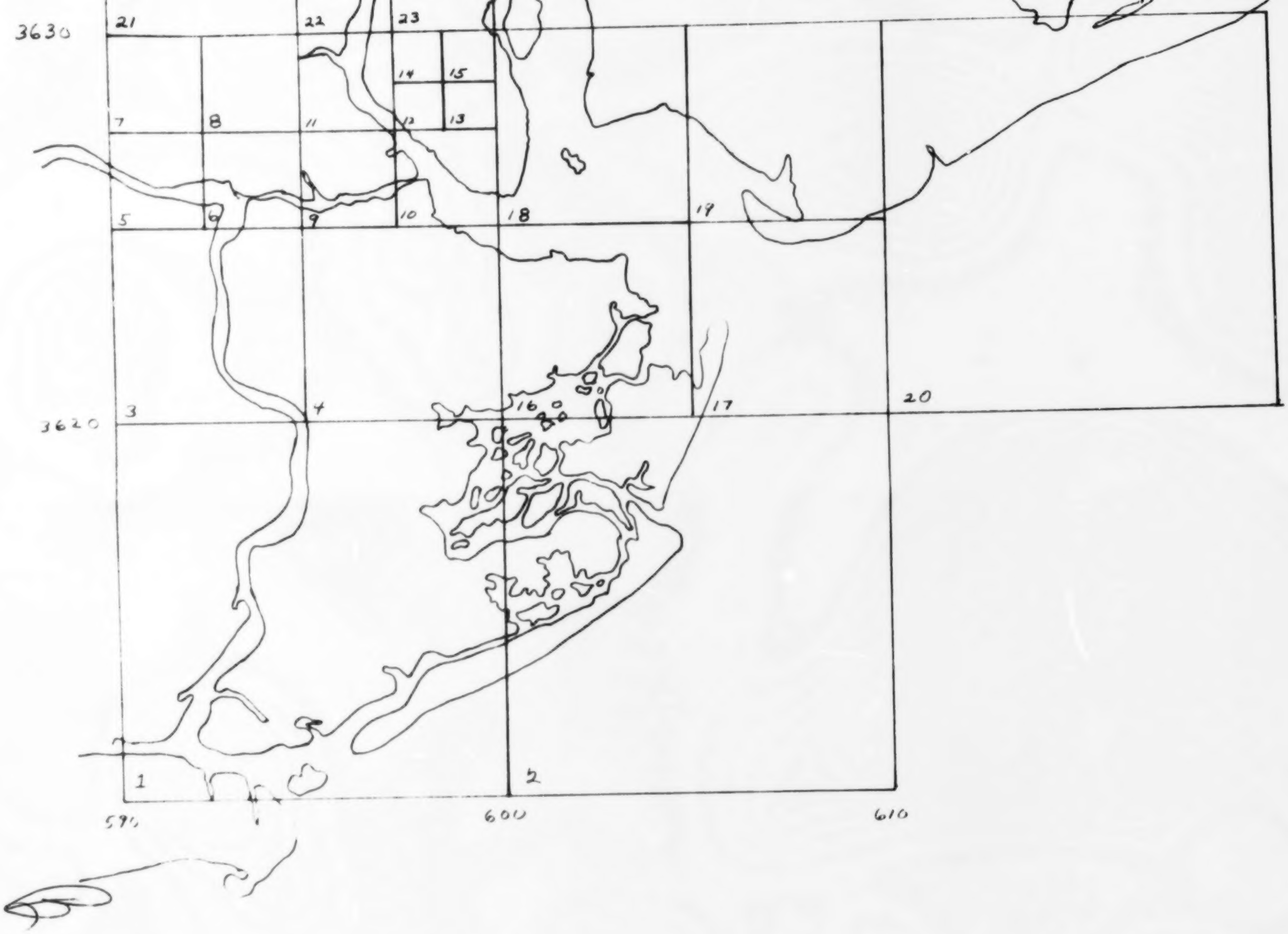
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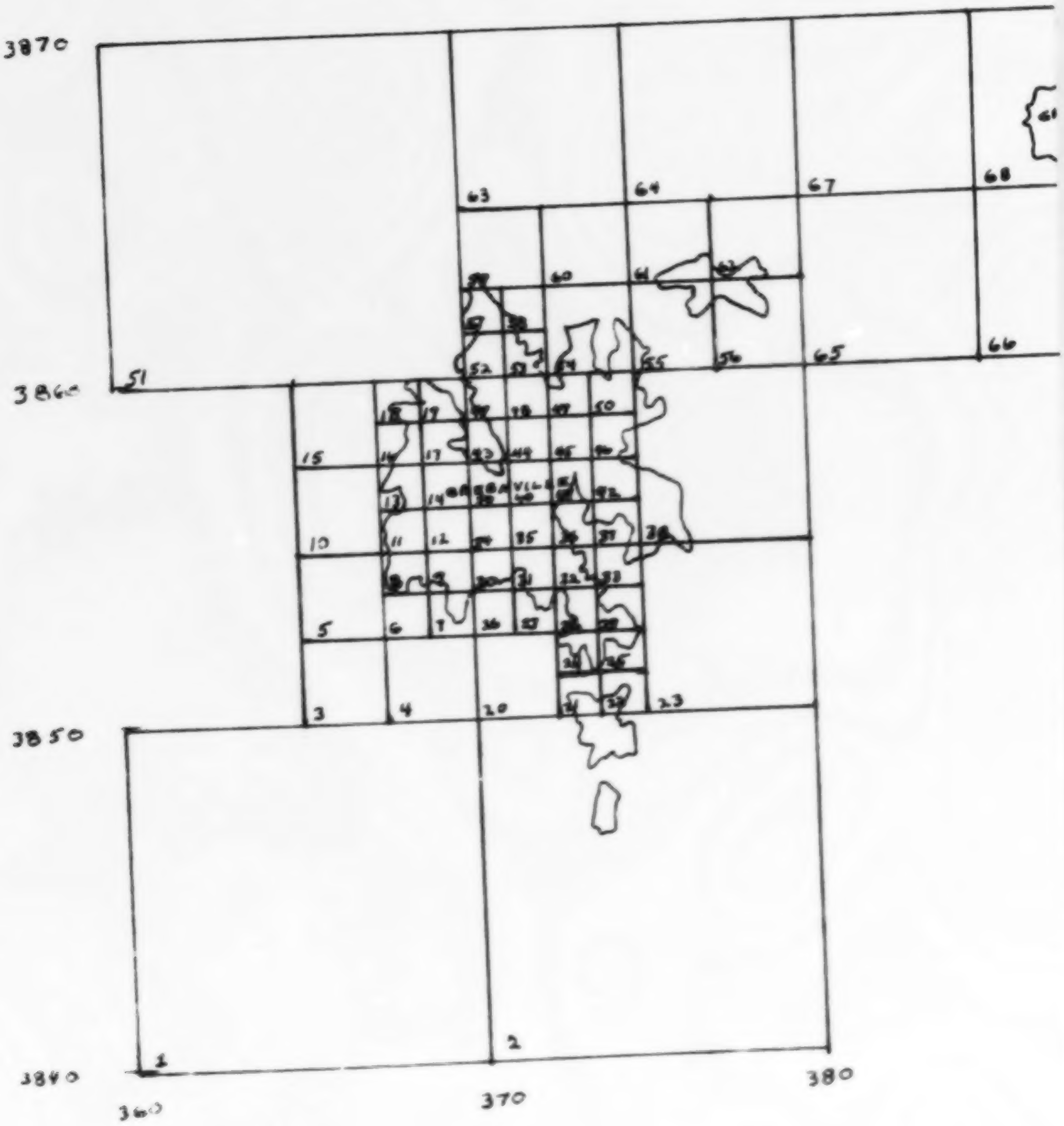
GREENVILLE - SPARTANBURG GRID



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17
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45
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GREENVILLE
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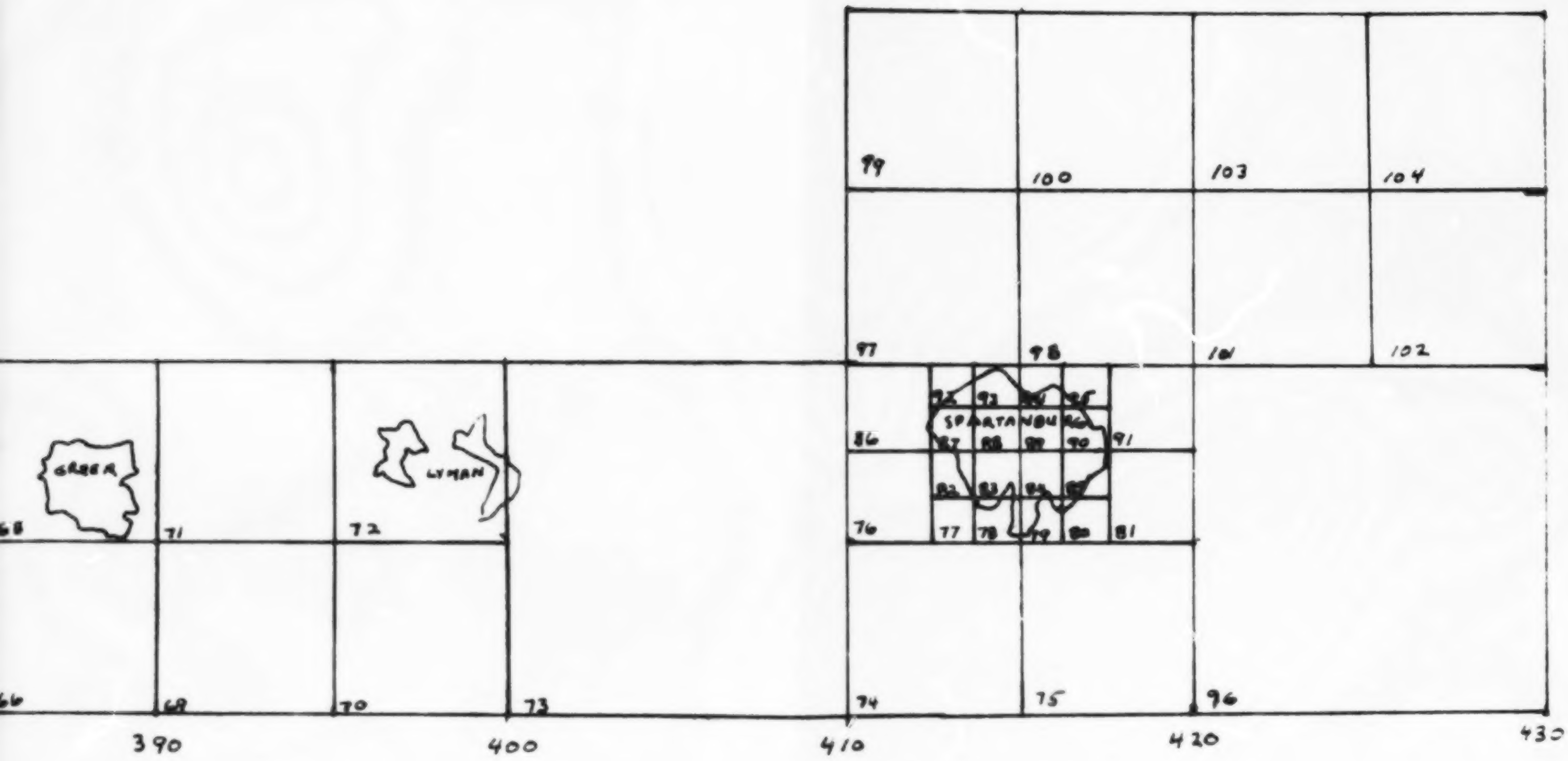
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SPARTANBURG
GREER
LYMAN
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